ORIGINAL

UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF TEXAS
FORT WORTH DIVISION

HENRY LEE SIMS, JR., *et al.*,

Plaintiffs,

VS.

KIA MOTORS AMERICA, INC. and KIA MOTORS CORPORATION,

Defendants.

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CASE NO. 4:14-cv-00045-A

APPENDIX IN SUPPORT OF PLAINTIFFS' RESPONSE IN OPPOSITION TO DEFENDANTS' MOTION TO EXCLUDE TESTIMONY OF PLAINTIFFS' EXPERT JERRY WALLINGFORD

TO THE HONORABLE COURT:

Plaintiffs respectfully submit this appendix in support of their Response in Opposition to Defendants' Motion to Exclude Testimony of Plaintiffs' Expert Jerry Wallingford. The appendix contains the following:

EXHIBIT	DESCRIPTION	PAGE NUMBERS
Exhibit A	Excerpts from Jae Hwa Park deposition dated April 10, 2014	4-6
Exhibit B	Excerpts from Jack Ridenour deposition dated April 17, 2015	7-17
Exhibit C	Sworn Declaration of Jerry G. Wallingford	18-22
Exhibit D	Letter dated January 29, 2015 to Martin D. McLean from Jerry G. Wallingford, P.E.	23-54
Exhibit E	Excerpts from Jeffrey D. Colwell deposition dated May 6, 2015	55-61
Exhibit F	Autopsy Report dated April 29, 2013	62-75
Exhibit G	Excerpts from Beverly Ann Fuller deposition dated October 1, 2014	76-78
Exhibit H	Excerpts from Beverly Ann Fuller deposition dated March 18, 2014	79-80
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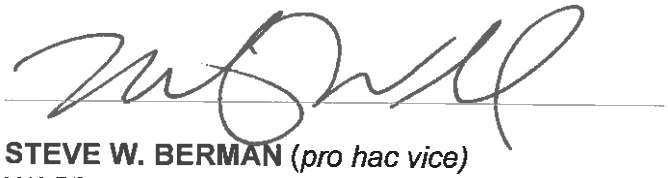
EXHIBIT	DESCRIPTION	PAGE NUMBERS
Exhibit J	Excerpts from Jerry G. Wallingford, P.E. deposition dated April 8, 2015	83-93
Exhibit K	Letter dated January 30, 2015 to Martin D. McLean from Michael J. McCort, M.S., P.E.	94-105
Exhibit L	Excerpts from Jae Hwa Park deposition dated December 15, 2014	106-108
Exhibit M	Excerpts from Michael E. Klima, P.E. deposition dated April 21, 2015	109-113

Respectfully submitted,



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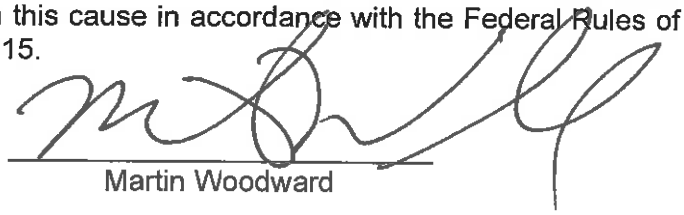
CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing document has been forwarded to all known counsel of record in this cause in accordance with the Federal Rules of Civil Procedure on this 22nd day of May, 2015.



Martin Woodward

IN THE DISTRICT COURT TARRANT COUNTY, TEXAS
48TH JUDICIAL DISTRICT

Bruce Smith, Brenda Kay Smith, Ballinger J. Smith, Cleveland Smith, Gary Smith, Jerome Smith, and Yolanda D. Sims, Individually and as Legal Heirs of the Estate of Lillie Mae Smith, deceased, Alonda Harper and Walter King, Sr., Individually and as Next Friends to Walter King., Jr., a deceased minor; Beverly Fuller, Individually,

Plaintiffs,

vs.

Cause No. 048-266472-13

Kia Motors America, Inc., Kia Motors Corporation, and Kevin Davis,

Defendants.

CONFIDENTIAL TRANSCRIPT
VIDEOTAPED DEPOSITION OF THE CORPORATE REPRESENTATIVE FOR KIA MOTORS AMERICA
JAE HWA PARK, VOLUME I

Thursday, April 10, 2014
8:54 a.m.

3501 Jamboree Road, Suite 6000
Newport Beach, California

REPORTED BY:
Becky J. Parker
CSR No. 8504, RPR

Q. Direct mounting?
A. Right.
Q. What other fuel tank designs does Kia have that use a direct mounting system?
A. We had Rio before.
Q. Any other vehicles that used a direct mounting system other than the Kia Rio and the Kia Soul?
A. That's all the vehicles for that methodology among the vehicles that's been sold here in United States.
Q. What about sold elsewhere?
A. They -- we used direct mounting for the smaller size vehicles.
Q. Such as?
A. Eon. i10. i20.
Q. And these are all Hyundais?
A. Kia Morning.
Q. Any others?
A. That's all I can recall as of right now.
Q. Whenever you have a strap-mounted fuel tank, the fuel tank can actually shift, can it not? It can give?
A. When the fuel tank is being mounted with the strap, the fuel tank is attached to the floor all the way so therefore it does not move.

Q. But in the event of an accident, the straps permit the -- permit the fuel tank to move; correct?

MR. SLOBIN: Object to the form. Go ahead.

THE WITNESS: If the strap breaks away, that may be possible.

BY MR. TRACY:

Q. Does the 2014 Kia Soul also use direct mounting or does it use a fuel -- fuel tank straps?

A. Strap.

Q. Why did it go to -- why did the -- the 2014 Kia Soul start using straps rather than direct mounting?

A. Because the -- the tank size, the tank volume, had increased, and because -- and that also increased the -- the weight of the tank, therefore the mere direct -- therefore the direct mounting will not have the sufficient support for the tank.

Q. Has -- has Kia ever used a fuel tank design that was -- that was high up in the vehicle, 500 millimeters plus?

THE INTERPRETER: I'm sorry. The --

MR. TRACY: That's --

THE INTERPRETER: -- the interpreter did not understand the question. Can you please ask it again?

MR. TRACY: Well, let me work on it then.

THE INTERPRETER: Thank you.

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF TEXAS

HENRY LEE SIMS, JR., et al,

Plaintiffs,

vs. Case No. 4:14-CV-045-A

KIA MOTORS AMERICA, INC., et al,

Defendants.

The Confidential Deposition of JACK RIDENOUR,

(Confidential subject to a Confidentiality Agreement)

Taken at 41000 Woodward Avenue,

Suite 200 East,

Bloomfield Hills, Michigan,

Commencing at 9:05 a.m.,

Friday, April 17, 2015,

Before Lezlie A. Setchell, CSR-2404, RPR, CRR.

manufacturers.

Q. Okay. So you've never been retained as an expert to testify against a vehicle manufacturer?

A. That is correct.

Q. All right. Jumping around a little bit, do you recall when you were first retained in this case?

A. I don't.

Q. That would be reflected in your correspondence, I presume?

A. Correspondence would probably be the best. You can look at the first billing, the first invoice, too.

Q. So going back to just my getting a sense of your background a little bit, you start working at Ford in 1971 and up until 2008, and in looking at your report, you mentioned that, I think you said for five years or for a period of five years, you were a fuel system design and release engineer?

A. Correct.

Q. Where does that experience fall within the timeline of from 1971 to 2008?

A. In the mid '70s.

Q. Okay. So you were a fuel system design and release engineer for various complete vehicle fuel systems in the mid '70s?

A. Correct.

particularly in the later '70s, for example, improvements to fuel tank straps, the rollover valve that was introduced in 1976, I believe, those types of things.

Q. Okay.

A. The energy-absorbing structures that were being developed for fuel system protection in crash, the concepts in those structures were used on a wide variety of vehicles.

Q. Okay. I think I understand.

A. At that particular time, I had systems responsibility for the Maverick, the Comet, the Granada, the Monarch, and the Versailles, so those five vehicles.

Q. Got it.

A. And some of the work I did on those vehicles, for example, we introduced crash shields to fuel tanks that were made out of ultra high-density polyethylene, which was a new material, first application in an automobile, and I worked on developing that shield, okay, and that same material was used on the Pinto.

Q. Years later?

A. No.

Q. Okay. So explain that to me. There was a --

A. Well, in 1977, FMVSS 301 added a rear crash requirement for 30-mile-an-hour rear moving barrier,

developed. So I worked with the Pinto engineers on that.

Q. I didn't mean to step on your answer. I apologize.

A. I'm just trying to explain how that worked.

Q. And that's helpful because that's a little bit before my time.

So in terms of -- it sounds like one of the things that you're doing when you're working on these five systems in the '70s when some of these revelations are coming to light regarding Pinto and the requirement of FMVSS 301 comes into place is there's a determination to shield the vehicles that you're working on; is that fair?

MR. KELLY: Object to form.

A. In order to meet that standard and exceed that standard, Ford chose to utilize shields on some of their vehicles, crash shields on some of their vehicles, and they developed a new material for that.

BY MR. McLEAN:

Q. In terms of the five vehicles that you mentioned that you had system responsibility for, I won't ask you to name them again, how many of those utilized these polyethylene shields?

A. All of them.

Q. All right. Now polyethylene shield, that sounds to me

A. Not the design and release area. My next area was in safety, investigating accidents.
Q. Okay.
A. And particularly fuel system fire, post-collision fire accidents and other fires was my specialty, but I also did all areas of the car.
Q. All right. Now going back to your time as a design and release engineer on fuel systems in the '70s, are you with me?
A. Yes.
Q. We've been jumping around a little bit.

MR. KELLY: Could you repeat that.

MR. McLEAN: Go ahead and read it back.

(The requested portion of the record was read by the reporter at 10:37 a.m. as follows:

"Question: Now going back to your time as a design and release engineer on fuel systems in the '70s, are you with me?")

BY MR. McLEAN:
Q. Yes?
A. Yes.
Q. Okay. Of those five vehicles, how many of them utilized straps to secure the tank to the body of the vehicle or to secure the tank?

A. During the time that I had design responsibility for them, all of them did.
Q. All right.
A. But not necessarily during all of their production period.
Q. Did it change after -- did the method to affix the tank on these five vehicles change after you were no longer responsible for their fuel systems?
A. No.
Q. Okay.
A. The method, the strap attachment method changed, but there was still a strap.
Q. Okay. During your time at Ford, are you aware of any Ford vehicle that used any method other than the strap attachment method?
A. Ford had bolt-on fuel tanks, I'm trying to remember the last year that they used those, but they used them in the '60s, and I think they had some in later use, also, but I don't recall.
Q. Okay. So you know for certain that Ford utilized, I think they called it fixed mounting or direct mounting or something like that?
A. We called them bolting tanks, and we used them in the '60s and early '70s Ford had some of those, and I don't recall if we had any later or not.

Q. All right. At least since you started working at Ford Motor Company, you can't recall any vehicles that used anything other than straps to affix the fuel tanks to the vehicles?
A. That's why I say in the early '70s, there were some cars that did.
Q. All right. So other than perhaps for your first year or two --
A. Those are the only ones I recall.
Q. Okay. So would it be fair to say by 1975 forward, Ford didn't use bolting tanks?
A. I don't recall. I can't recall one right now but I wouldn't -- it's hard to testify to a negative.
Q. Sure, that's fine. You would agree with me that the vast majority of Ford Motor Company's fuel tanks are secured using straps?
A. Yes.
Q. And while this isn't a memory test, you can't recall any vehicles from the mid '70s forward that used anything other than straps to secure the fuel tank?
A. Actually, the European Capri, Ford Capri was imported to the United States in the mid '70s. That was a bolting tank.
Q. So there was a Ford vehicle produced abroad that was imported to the United States?

A. Yes, it was produced in Germany.
Q. That would be in the mid '70s?
A. Yes.
Q. Other than that, you can't remember any?
A. If I sat here longer, I may think of more, but that's the only one I can think of right now.
Q. Okay. May I take a look at your CV for a moment?
A. Sure.
Q. Thank you. I think I'm pretty much done with this. Thanks for your indulgence.

So let me ask you, when did you go back in to become more of a safety engineer after you'd concluded your business development work at Ford?

A. 1978.
Q. That's when you went back and started working as a -- let me make sure I get this right.
A. Okay.
Q. I thought you said you started working in the business development side in 1978; is that right?
A. 1977.
Q. Okay. And then maybe you did, maybe you didn't like it, so you wanted to go back into engineering more?

MR. KELLY: Object to form.

A. Right.
BY MR. McLEAN:

were, you know, parking alongside the expressways where most of these accidents occurred, and they involved extreme impacts. That's why it's illegal to stop along expressways, it's a dangerous place to be, and police cars find themselves in more dangerous locations and situations than typical automobiles.

BY MR. McLEAN:

Q. My question is a little different. What was the mechanism causing the tank -- you said you were involved in analyzing how the tanks were punctured?

A. Sure, uh-huh.

Q. What in your opinion was causing these tanks to puncture?

A. There were several different mechanisms. There wasn't just one. Some of it was police carry a lot of equipment in their trunk, and that can be everything from shovels to flares, shotguns, spike strips to puncture tires, okay. They carry a lot of things in their trunk, and some of those things were puncturing the tank.

Q. Okay.

A. So part of the fix was to -- the fix -- part of the improvements or upgrades were to add a trunk pack, make a trunk pack available to police departments which would help them organize their equipment in the

platform cases. Here's my question: The shields were intended to prevent the tank from rupturing, correct?

A. I agree.

Q. And that was the engineering solution that Ford Motor Company when you were an employee crafted to try to prevent the fuel tank of these Panther platform vehicles from puncturing, correct?

A. That was part of the solution. That was one part of it.

Q. Were you involved in the decision to utilize the shields to prevent puncture on the Panther platform vehicles?

A. Yes.

Q. And what was your input?

A. I participated in the analysis of what was causing the ruptures and potential changes to the design to improve it.

Q. What was causing the ruptures in your opinion on the Panther platform vehicles?

MR. KELLY: Object to the form of the question.

A. It was impacts that were far more severe than any vehicle was designed to withstand, okay, so it was, as I said, some of the impacts were above 100 miles an hour, and some of them involved heavy trucks. They

A. And these upgrades were implemented but go ahead.
Q. In terms of your testing to analyze these upgrades that were implemented on the Panther platform, what did that tell you, what did that show you in terms of their effectiveness at addressing the hazards that you expected the vehicles to incur?
A. They improved the performance of the vehicle. They did not eliminate the risk.
Q. How much did they improve?
A. It's hard to quantify. I don't understand the question, how to quantify the --
Q. Sure. Let me ask it this way. It improved the performance and safety of the vehicle enough that Ford believed it would implement these fixes?
MR. KELLY: Object to the form.
A. Ford did implement the upgrades, and they felt that they were effective upgrades.
BY MR. McLEAN:
Q. Okay. Because they wouldn't make these -- they wouldn't implement these fixes if they believed they were ineffective, correct?
A. I agree.
MR. McLEAN: All right. We've been going another hour. Why don't we take a break.
MR. KELLY: Okay.

UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF TEXAS
FORT WORTH DIVISION

HENRY LEE SIMS, JR., *et al.,*	§	
	§	
Plaintiffs,	§	
	§	
VS.	§	**CASE NO. 4:14-cv-00045-A**
	§	
KIA MOTORS AMERICA, INC. and	§	
KIA MOTORS CORPORATION,	§	
	§	
Defendants.	§	

SWORN DECLARATION OF JERRY G. WALLINGFORD

I, Jerry G. Wallingford, declare as follows:

1. I am over the age of 18 and have personal knowledge of the matters stated herein. If I am asked to testify as a witness, I could and would competently testify as to the following:

2. I am a professional engineer licensed and certified by the State of Texas. I have more than 53 years of experience in automobile design, testing, development and repair. My professional experience and education includes working as an auto mechanic, a Development Engineer at Ford Motor Company, a Project Engineer, a Senior Design Engineer and, since 1982, working as a Senior Forensic Engineer at Verifact Corporation, a company I founded.

3. I hold memberships with the Society of Automotive Engineers, the American Society of Mechanical Engineers and the American Academy of Forensic Sciences. I have also been selected to serve on the technical committee for the Society of Automotive Engineers for Fire Safety.

4. I have taken steps to maintain my engineering expertise by participating in ongoing engineering education and training throughout. Since 1994, I have completed at least six different courses related to the investigation of vehicle fires including training provided by the

University of Washington, College of Engineering, and Texas A&M University's Fire Protection Training Division for Scientific Fire Investigation.

5. I am been qualified to testify as an expert witness having been allowed to testify at trial at least 120 times, including on issues related to design flaws in a vehicle's fuel system and regarding fire-related dangers inherent in a vehicle's fuel system.

6. In this case, I was retained by plaintiffs' attorneys to analyze the safety of the fuel system of the 2010 Kia Soul as well as to analyze the vehicle's crashworthiness.

7. As a part of my analysis, I performed multiple inspections of the subject vehicle that was involved in a fuel fire on April 28, 2013. Three passengers, including Henry Sims, Sr. died in the fire.

8. I also performed numerous inspections and analysis of an undamaged "exemplar" Kia Soul that was the same model and year as the subject vehicle.

9. In addition, either myself, or other ~~engineers~~ technicans under my direction, inspected numerous vehicles similar the Kia Soul to analyze the fuel systems used by Kia's competitors. The purpose of those inspections was to ascertain potential alternative designs that could have been utilized on the Kia Soul to prevent or significantly reduce the likelihood of injury or death in a fuel fire such as the one that claimed the life of Mr. Sims.

10. The findings of my investigations were explained in a report dated January 30, 2015.

11. By way of summary, I determined that there exist several alternative designs that should have been utilized on the Kia Soul to prevent or significantly reduce the likelihood that Mr. Sims would have died in the vehicle fire. Specifically, I identified a fuel tank shield, reinforcing fuel tank straps and the use of a metal cover to seal the opening directly above the fuel pump, as safer alternative designs.

12. Each one of these alternative designs has long been used in the automotive industry well-before the Kia Soul went to market.

13. During my deposition, Kia's attorneys did not question me regarding the costs of incorporating these safer alternatives into the 2010 Kia Soul. However, I was prepared to testify on these issues had I been asked.

14. I believe that all of these technologies could have been utilized with little, if any, increase in the costs of the car. A fuel tank shield costs between $40 on the low end of the range to approximately $300 on the high end. The fuel tank shield for the Honda Fit, a vehicle remarkably similar to the Kia Soul, can be purchased for approximately $45.

15. Fuel tank straps also vary in price, though are somewhat less expensive than fuel tank shields. The range of prices for fuel tank straps would be $25 to $65.

16. Fuel pump service port covers are still less expensive. A metal cover can be purchased for less than $20.

17. Even considered collectively, the added cost of using these alternative designs would be expected to add only slightly to the cost of the vehicle. Certainly, the added expense is so nominal that it would not make it impractical for the average consumer to purchase a Kia Soul.

18. I have also considered whether the risk or added costs of using any or all of these technologies would outweigh the potential benefit. I have concluded that the benefits far outweigh any impairment in utility.

19. I do not believe Kia's attorneys asked me any questions about whether the risks of using these proposed alternative designs are outweighed by their benefits. Had I been asked, I could have offered my analysis on these issues, as well.

20. The benefits of using these devices are obvious: the 2010 Kia Soul's fuel tank is made of a thin piece of metal measuring only 0.8 millimeters thick. That is roughly the thickness of a common paper clip. The gas tank rides about 6 inches off of the ground when carrying five passengers and has no protective devices designed to prevent the tank from rupturing.

21. The obvious benefit of using fuel tank shields and reinforcing straps is that both are specifically designed to preserve the ground clearance for the tank. In addition, a fuel tank shield is designed to protect the tank from debris impacts similar to the one that occurred in this instance.

22. Potential impairments from using tank shields and reinforcing straps include the addition of weight to the vehicle. These concerns can be alleviated by using a polymer rather than a metal shield. To the extent added weight remains an issue, any impairment is far outweighed by the protective benefit these devices provide for the fuel tank.

23. The same is true for the use of a metal fuel pump access cover. While metal is heavier, it is far better suited to prevent fire intrusion that a flammable plastic cover.

24. I have also investigated the crashworthiness of the Kia Soul related to post-crash occupant egress. One element of vehicle crashworthiness is that if passengers survive the initial collision, sound engineering principles dictate that they should not die in a subsequent fire.

25. "Crashworthiness" is another way of saying that automakers are responsible for taking reasonable steps to design vehicles that afford passengers a reasonable measure of safety during a crash. One element of vehicle crashworthiness is that if passengers survive the initial collision, they should not die in a subsequent fire.

26. Given that each of the three rear seated passengers survived the initial crash in this case, yet all were unable to escape the vehicle before it was engulfed in flames, I believe that the Kia Soul is not reasonably crashworthy.

27. During my deposition, I provided defense counsel with numerous photographs of the safer alternative designs I believe would have prevented or significantly reduced the likelihood that Henry Sims, Sr. died in this vehicle fire. Altogether I provided photographs of at least six vehicles manufactured by Kia's competitors that employ some, or all, of the alternatives I have identified as being safer alternative designs in this case.

28. I also provided defense counsel with detailed ~~drawings~~ sketches, diagrams, as well as measurements obtained from these vehicles.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 19th day of ~~January~~ May, ~~2014~~ 2015 in Silverton, Oregon.

Jerry G. Wallingford

VERIFACT
CORPORATION

ACCIDENT AND FAILURE ANALYSIS

11220 WEST LOOP 1604 NORTH • SAN ANTONIO, TEXAS • 78254
FAX 210.523.5694 • mailbox@verifactcorp.com
210.523.5696

January 29, 2015

Mr. Martin D. McLean
Hagens Berman Sobol Shapiro LLP
1918 Eight Avenue
Suite 3300
Seattle, WA 98101

Subject: *Henry Sims, Jr., et al,*
vs.
Kia Motors America, Inc., et al

United States District Court for the
Northern District of Texas,
Case No.: 4:14-CV-00045-A

Dear Mr. McLean:

Pursuant to your instructions, we have conducted an investigation and analysis regarding a two vehicle accident which occurred on State Highway 199 (Jacksboro Highway) at Hanger Cutoff Road in Fort Worth, Tarrant County, Texas. The accident occurred on April 28, 2013.

SCOPE OF WORK:

The purpose of analysis is to determine if the fuel system on the subject 2010 Kia Soul was defectively designed or manufactured contributing to the thermal burn, smoke and soot inhalation injuries which led to the death of Henry Sims, Sr. and, if so, to identify design and/or manufacturing alternatives that would, within a reasonable degree of engineering certainty, most probably

would have prevented or minimized the release of any significant amount of fuel from the fuel tank. Specifically, Verifact Corporation was asked to analyze the safety of the fuel system utilized on the 2010 Kia Soul, as well as the crashworthiness of the vehicle.

BACKGROUND:

Initially contacted by your office on November 17, 2014, we were advised of the circumstances surrounding the subject accident. We were advised that you represent the family of a rear seat passenger 2010 Kia Soul which was struck on the right side by a 1999 Honda Odyssey, then subsequently the Kia struck a yield sign and caught on fire.

The plaintiffs in this case are the surviving family of Henry Sims, Sr. ("Mr. Sims"). Mr. Sims was killed in fire that started when the fuel tank of the 2010 Kia Soul in which he was riding ruptured after striking the break-away portion of the base of a "Yield" sign. Mr. Sims, and two other passengers riding in the rear seat of the Kia Soul were trapped in the vehicle after the crash and died from fire-related injuries.

The plaintiffs' filed a lawsuit against Kia Motors America, Inc. (KMA) and Kia Motors Corporation (KMC) claiming that the fuel system of the 2010 Kia Soul is defective. Specifically, the plaintiffs fault the Kia Defendants for failing to take adequate steps to protect the fuel tank of the Kia Soul by using a fuel tank shield to protect the tank from rupturing and fuel tank mounting straps to secure the tank to the vehicle in the event of a collision. The plaintiffs also allege that the Kia Soul in which Mr. Sims lost his life was defective because he and the other passengers in the rear seat did not have a reasonable opportunity

to escape the before the fire spread into the passenger cabin.

On April 28, 2013, Mr. Sims was riding in the rear seat of a 2010 Kia Soul. The vehicle was driven by Beverly Fuller, an acquaintance fellow parishioner from Mr. Sims' church. Riding along with Mr. Sims in the backseat of the vehicle, were Walter King, Jr. and Lillie Smith. Alonda Harper was seated in the front passenger seat. The five passengers were traveling from Fort Worth, Texas to a function at another church located in Azle, Texas.

The Kia Soul was traveling northwest on State Highway 199 (Jacksboro Highway). At approximately 2:00 P.M., the Kia Soul entered the intersection of Jacksboro Highway and Hanger Cutoff Road. As the Kia Soul entered the intersection, it was struck on the right front quarter panel by a Honda Odyssey driving along Hanger Cutoff Road. This vehicle was driven by Kevin Davis.

After the collision with the Honda, the Kia Soul rotated in a clockwise yaw as its momentum carried it onto a traffic island located on the Northwest corner of the intersection. After mounting the curb, the Kia Soul struck a light pole also located on the island. The impact from the light pole occurred at the left rear quarter panel of the vehicle and caused the Kia Soul to reverse its rotation counterclockwise.

Carrying its momentum forward, the Kia Soul continued along the top of the traffic barrier before striking a "Yield" sign with the center portion of the vehicle's front bumper. The sign "broke away" from is base, as it was designed to do, causing the majority of the pole and sign to pass over the top of the Kia Soul. However, as the vehicle continued forward the remaining portion of the "Yield" sign base that was left standing on the traffic island, tore through the

fuel tank of the vehicle. The vehicle continued its rotation as it descended from the traffic island and came to rest facing the area where the collision occurred.

The gasoline and gasoline vapor from the ruptured fuel tank ignited and a fuel fire started. The passengers in the Honda Odyssey immediately exited their vehicle in order to check on the passengers of the now burning Kia Soul. Several concerned bystanders also stopped due to the vehicle fire that had erupted.

Ms. Fuller has stated that after the vehicle she was driving came to a rest, she looked directly at each of her passengers to determine if they were alright, including Mr. Sims. Ms. Fuller and Ms. Harper, both of whom were able to exit the vehicle following the collision, confirmed that the rear seat passengers were alert and conscious after the collision.

After the vehicle came to rest and the front seat passengers climbed out, efforts immediately turned to helping the three passengers in the rear of the Kia Soul escape from the burning vehicle. Witnesses describe as many as ten people trying to pry open the doors of the vehicle to allow Mr. Sims and the other passengers to escape. Bystanders used whatever they could find, including remnants of a road sign, in their attempts. In the end, the fire became too intense and the rescuers had to back away from the vehicle. Mr. Sims and the other two passengers remained trapped in the Kia Soul and were later pronounced dead from fire-related injuries. These findings were later confirmed by the Fort Worth Medical Examiner.

Local law enforcement investigated the collision for several months. As the investigation concluded neither of the drivers was cited for causing the

collision. It does not appear that any investigation was undertaken by local authorities related to whether the 2010 Kia Soul is defective.

MATERIALS SUPPLIED:

Subsequent to this initial conversation the following items were supplied for our review:

- First Amended Complaint for Damages;
- KMA's Responses to Plaintiffs' Requests for Production of Documents;
- KMC's Responses to Plaintiffs' Requests for Production of Documents;
- Kia document productions labeled as KMA 00001 – KMA 00258; KMC 000001 – KMC 003855; Mistras Photographs and Report; and SIMS PLO 00001 – SIMSPLO 000945;
- Tarrant Count Sherriff's Office Investigation Files including dash camera videos and 911 calls, Event Report
- Collision Scene Photographs labeled DSC 0001 – DSC 0219;
- Vehicle Photographs labeled DSC 0001 – DSC 0154;
- Vehicle Photographs labeled DSC 06104 – DSC 6637;

- Tarrant County Medical Examiners File including autopsy report for Henry Sims, Sr.;

- City of Fort Worth Fire Department records including photographs P4280096 – P4280141; incident detail report;

- City of Fort Worth Police Department investigative records (3 discs), including preliminary and final fatality reports, witness and driver statements of units 1 and 2, 911 audio and call sheets, dashboard camera videos, Texas Peace Office Crash reports, Narrative Report, photographs IMG 0001- IMG 0386, Hit and Run Supplemental Report;

- Depositions of Jae Hwa Park, including exhibits taken (04/10/2014, 04/11/2014, 12/12/2014 and 12/15/2014);

- Deposition of Jeong Moon Jin including exhibits;
- Deposition of Chol Gu Lee, including exhibits;

- Deposition of Beverly Fuller;

- Deposition of Kevin Davis;

- Deposition of Tracy Crouch , including exhibits;

- Deposition of Det. Christopher Gorrie, including exhibits;

- Deposition of firefighter Lt. John Goodman.

I have been told that discovery in this matter is ongoing and that certain information may be exchanged between the parties after the date of this report. If additional information relevant to my work becomes available, I will incorporate that information into my analysis where appropriate. I reserve the right to supplement my opinions expressed in this report in light of any additional materials, including opinions expressed by other witnesses and/or other evidence that may be provided to me after submission of this report.

VERIFACT CORPORATION INSPECTIONS:

On January 15, 2015, Verifact Corporation personnel conducted a preliminary inspection of the subject 2010 Kia Soul at LCI in Parker, Texas. The vehicle was identified by VIN KNDJT2A21A7702490. The vehicle is equipped with a four (4) cylinder transverse mounted engine, automatic transmission, power brakes with ABS, power steering, air conditioning and cruise control. The entire vehicle demonstrated fire damage. Impact damage was noted to the right side of the vehicle below the beltline with the right front door showing penetration through the body skin. There is also damage on the left rear quarter panel, on the left end of the rear hatch and the left front fender and both left side doors. The general condition of the vehicle at the time of the inspection is shown in Figures 1 and 2.

Figure 1. Verifact Corporation photograph 001 2010 Kia 1-15.
2010 Kia Soul viewed from the left rear at January 15, 2015, inspection.

Figure 2. Verifact Corporation photograph 006 2010 Kia 1-15.
2010 Kia Soul viewed from the right front at January 15, 2015, inspection.

The damaged fuel tank was found stored inside the vehicle. The tank exhibited a rip/tear on the underside near the center of the tank located diagonally from the front right to the left rear. The rip/tear was measured at approximately eight and one quarter (8 ¼) inches wide near the rear of the tank. The general configuration of the rip/tear in the bottom of the tank is an inverted "T". The underside of the fuel tank is shown in Figure 3. A detailed view of the rip/tear in the fuel tank is shown in Figures 4 and 5.

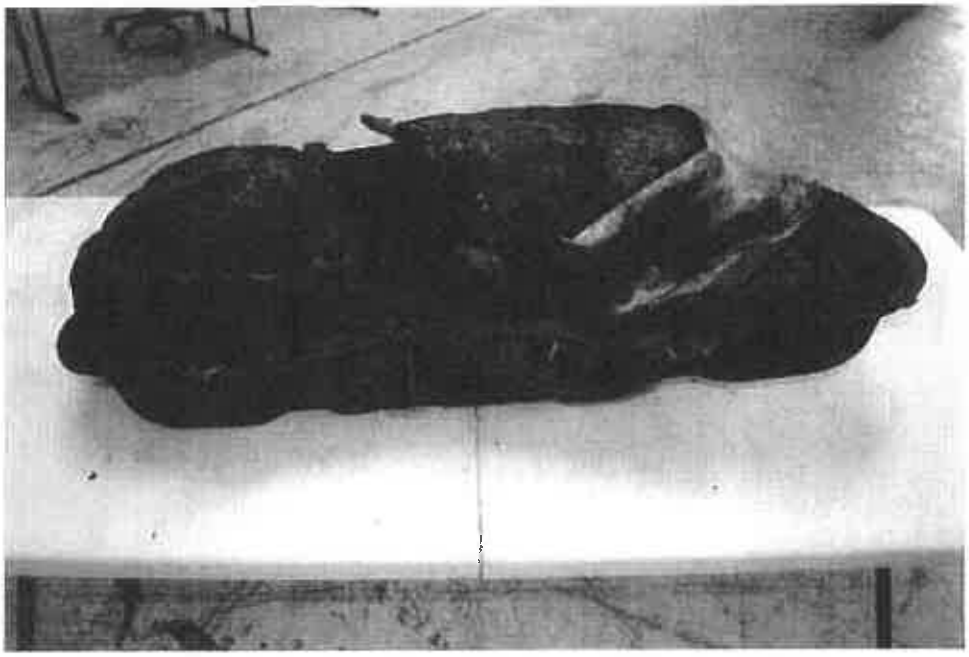


Figure 3. Verifact Corporation photograph 056 2010 Kia 1-15.
Subject Kia fuel tank underside viewed from the front.

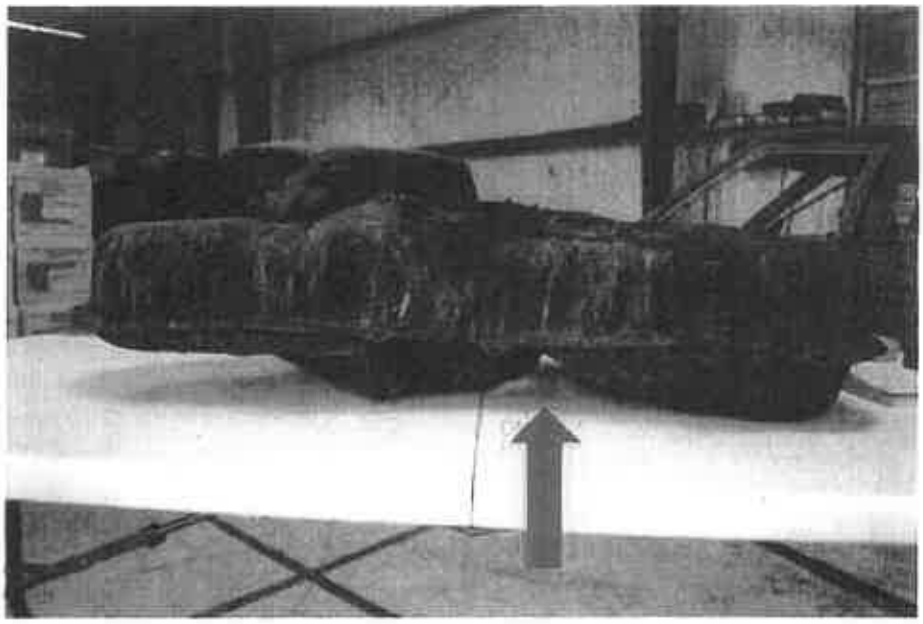


Figure 4. Verifact Corporation photograph 054 2010 Kia 1-15.
Subject Kia fuel tank front showing beginning of ripped bottom at the red arrow.

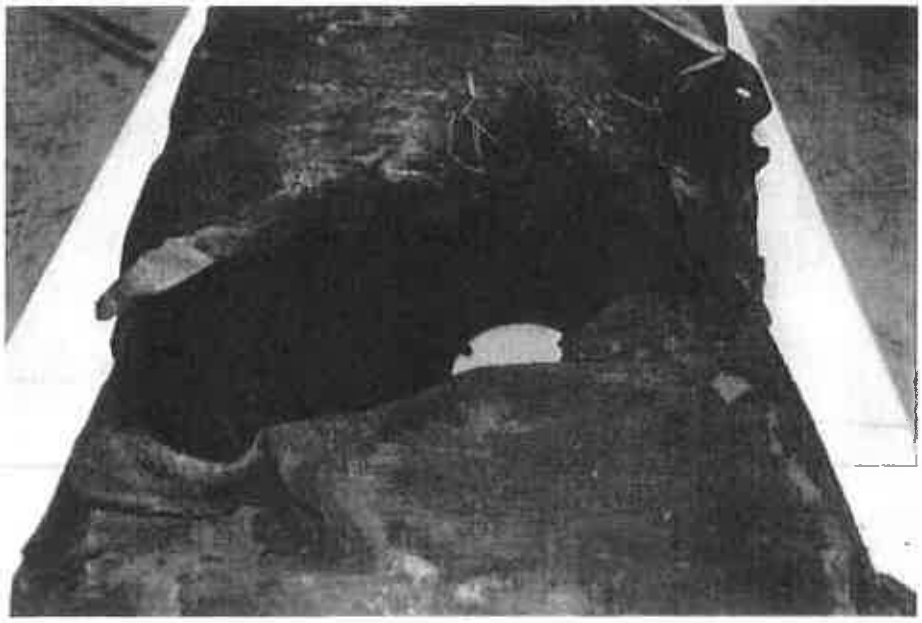


Figure 5. Verifact Corporation photograph 060 2010 Kia 1-15.
Subject Kia fuel tank underside showing the ripped bottom.

On January 20, 2015, Verifact Corporation personnel conducted a supplemental inspection of the subject 2010 Kia Soul at Capp's Automotive in Allen, Texas, for the purpose of inspecting the underside of the vehicle. The vehicle was placed on a lift for inspection of the underside. The subject fuel tank was placed into the position it was immediately after the accident to observe the position relative to the vehicle structure. Figure 6 illustrates the fuel tank as placed in the subject vehicle during this inspection.

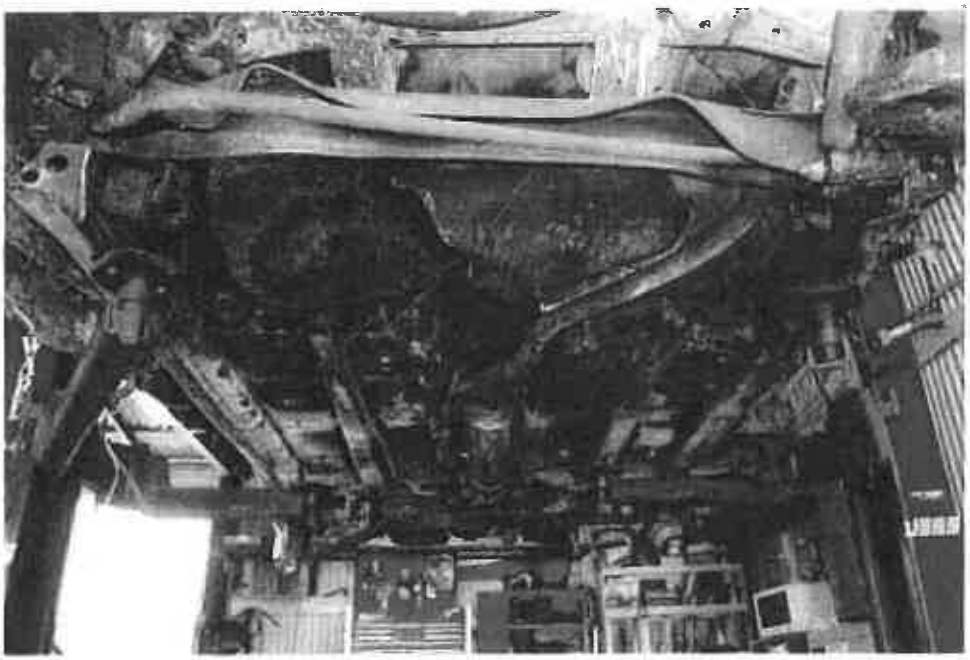


Figure 6. Verifact Corporation photograph 190 2010 Kia 1-15.
Subject Kia fuel tank installed on the subject vehicle showing the ripped bottom.

It was noted that the polymer service cover above the fuel tank mounted in the vehicle floorpan was completely missing and consumed by the fire. The polymer service cover located under the rear seat of the subject 2010 Kia Soul allowed fire to enter the occupant compartment within a short period of time. The opening where the service cover was located is shown in Figure 7 at the red arrow.

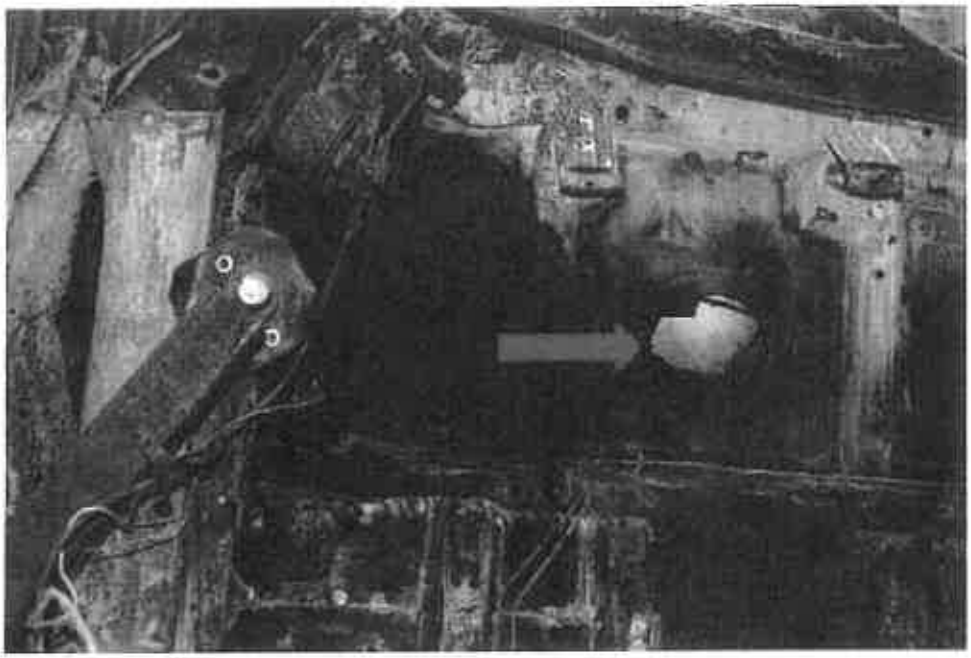


Figure 7. Verifact Corporation photograph 132 2010 Kia 1-15.
Subject Kia underside showing the service cover opening above the fuel tank mounting area.

An exemplar 2010 Kia Soul was inspected and documented by Verifact Corporation personnel on January 28, 2015, in San Antonio, Texas. The vehicle was identified by VIN KNDJT2A27A7179752 and Michigan license number DBV-1036. The odometer reading is 31906 miles. The vehicle is equipped with a 4 cylinder transverse gasoline engine, automatic transmission, cruise control, air conditioning, power windows, and an AM/FM/CD/Bluetooth entertainment system. The tires on the vehicle are Hankook Optimo H426 in the P205/55R16 size. All tires were inflated to thirty three (33) PSI. The unladen vehicle fuel tank clearance between the bottom of the tank and the ground was measured at approximately 0.70 feet (8.4 inches). Figure 8 shows the general condition of the vehicle at the time of inspection. Figure 9 illustrates the ground clearance measurement.

Figure 8. Verifact Corporation photograph 03 14-112-FP EX.
Exemplar 2010 Kia Soul at the time of inspection.

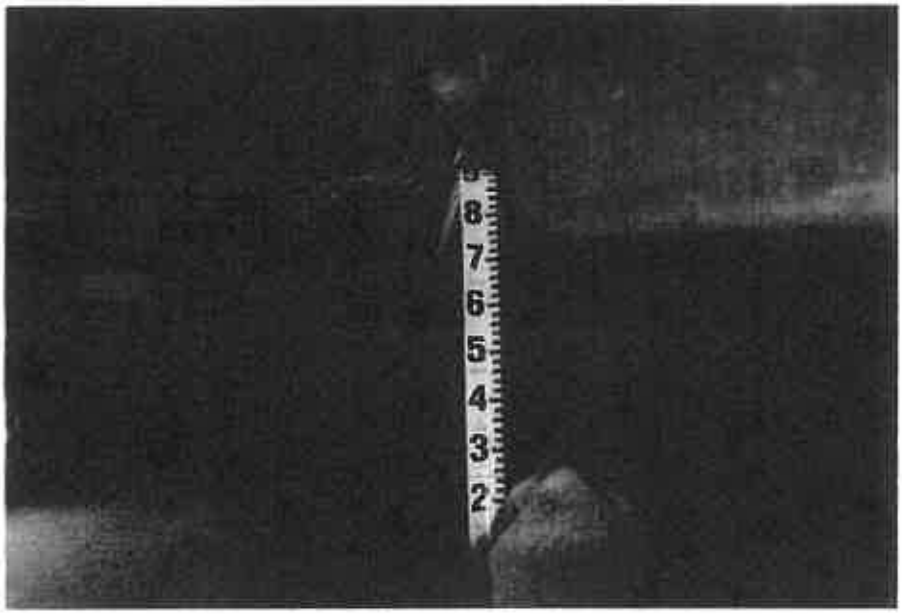


Figure 9. Verifact Corporation photograph 25 14-112-FP EX.
Exemplar 2010 Kia Soul fuel tank ground clearance.

RESEARCH MATERIALS:

Materials reviewed in addition to the supplied items previously listed include:

- Vehicle specifications relative to the 2010 Kia Soul compiled by the National Insurance Crime Bureau Vehicle, Canadian Vehicle Specifications, and the Vehicle Year & Model Interchange List from Scalia Safety Engineering.

DISCUSSION:

According to the Kia defendants, Kia Soul was first sold in the U.S. market as a model-year 2010 vehicle. The Kia Soul is classified as a Compact Utility Vehicle intended to compete with similar vehicles like the Scion XB, the Nissan Cube and the Suzuki SX4.

The 2010 Kia Soul's fuel system was largely derived from designs utilized on earlier vehicles manufactured by Kia. As one company representative testified, the vehicle's fuel system does not employ any new safety innovations and the vehicle did not undergo any safety testing beyond the standard testing performed on earlier Kia vehicles. Other than a drop test, the Kia defendants do not perform testing, such as pendulum testing, to assess the ability to the fuel tank on the 2010 Kia Soul to withstand direct impacts.

The ground clearance of the unladen Kia Soul's fuel tank is 210 millimeters (about 8 inches). However, the cavity in which the tank is placed is deep enough to allow the tank to be placed higher into the body of the vehicle,

thereby providing for an increase in ground clearance of about 10% (20 to 25 millimeters). The Kia defendants did not utilize the additional available depth when attaching the fuel tank of the Kia Soul, thereby resulting in a lower ground clearance. Kia Soul's fuel tank is made of steel and its specifications state that it is 0.8 millimeters (0.031 inches) thick.

For decades, automakers have recognized the need to take precautions to protect the fuel tanks of their vehicles in the event of a collision with other vehicles or with fixed objects. Failure to protect a vehicle's fuel tank can lead to catastrophic results for a vehicle's occupants. The most obvious kind of harm involves injuries caused by fire.

Perhaps the most infamous example of an automaker failing to take adequate steps to protect a vehicle's fuel tank, involved the Ford Pinto in the 1970's. The danger of the Ford Pinto related to the tank's placement behind the rear axle of the vehicle which increases the propensity of rupturing following rear-ends crashes.

After the Pinto recalls, automakers had increased awareness of the need to ensure that their vehicles' fuel tanks were designed to withstand impacts from both other vehicles and/or from roadway debris. One of the more common safety devices used to protect a vehicle's fuel tank from rupturing is called a fuel tank shield or "skid plate." A tank shield is typically made of a separate piece of metal or polymer material in the area of the fuel tank that is designed to minimize the risk that a fuel tank will be punctured by deflecting the energy of impacts to the fuel tank. An example of a fuel tank shield is illustrated in Figure 10.

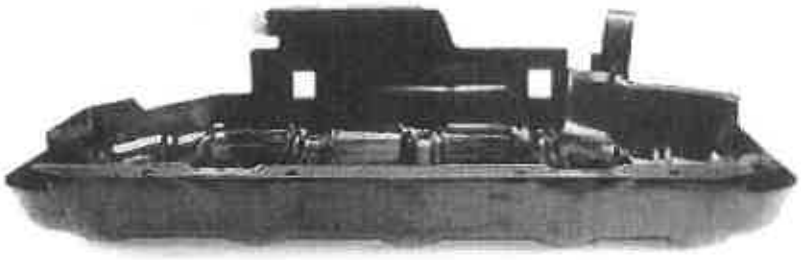


Figure 10. An example of a fuel tank shield.

Tank shields can also be helpful in holding a vehicle's fuel tank in place following a collision. This is an important feature because the risk of tank rupture increases with loss of ground clearance.

A second device used to secure a vehicle's fuel tanks are mounting straps. Like a tank shield, fuel tank straps are designed to prevent the fuel tank from falling from the body of a vehicle during a collision. Figure 11 is a photograph depicting fuel tank mounting straps.

Figure 11. An example of fuel tank mounting straps.

In addition to external options, automakers have also utilized internal fire-related safety technologies to minimize the risk of vehicle fires. For example, fuel tank bladders located within the tank are designed to minimize, if not prevent, fuel spillage in the event that the fuel tank is compromised.

The 2010 Kia Soul does not utilize any recognized safety devices to protect its fuel tank from rupturing. The Kia Soul does not have a fuel tank shield designed to prevent the tank from rupturing or dislodging. The 2010 Soul does not utilize fuel tank straps to secure tank to the body of the vehicle following a collision. The Kia Soul does not employ any type of internal protections, such as a fuel tank bladder, intended to minimize the risk of fuel spillage in the event that the tank is breached.

The Kia Soul did not take advantage of the additional depth available in the frame of the vehicle to increase the ground clearance between the tank and the roadway. As a result, the Kia Soul's 0.8 millimeter-thick fuel tank hangs inches above the roadway, exposed to potential impacts from roadway debris or obstructions in the vehicle's path. This presents a grave danger to passengers of the vehicle.

Kia's decision to omit these safety devise is hard to understand considering that it has utilized protective devices on the fuel tanks of other models in the Kia product lines. For example, starting in at least 1998, the Kia Sportage was equipped with a fuel tank shield that covered the entire underside of the vehicle's fuel tank. Likewise, the Kia Sorrento (Model Years 2005-2009) uses a "fuel tank protector" or skid plate that covers the entire

underside of its tank. Kia's press information for the Sorrento touted the safety benefits provided by its skid plates:

"A sturdy underbody skid plate is standard giving protection from rocks and tree stumps."

Likewise, the Kia defendants offer multiple vehicles in their product line that utilize fuel tank mounting straps to secure the vehicle's tank to its body. In fact, starting in Model Year 2014, the Kia Soul now utilizes fuel tank mounting straps to secure its fuel tank.

KMC performed "benchmarking" analysis of competitive vehicles when designing certain aspects of the fuel system of the 2010 Kia Soul. For example, Kia analyzed the fuel system of the Suzuki SX4, the Scion XB and the Nissan Cube to determine how these automakers designed their fuel system. As a part of that process, the Kia defendants would have to have noted that each of these competitors uses a fuel tank shield, fuel tank mounting straps, or both, to protect the fuel tanks of their vehicles.

KMC testified that fuel efficiency was a driving factor when making design considerations of the Kia Soul's fuel system, and that reducing vehicle weight is an important part of attaining greater fuel efficiency.[1] The concern with increasing fuel efficiency by reducing vehicle weight led, at least in part, to

[1] Hyundai and Kia were recently fined $300 million for overstating the fuel efficiency of their vehicles, including the Kia Soul. This fine, the largest in American history, followed a nearly $400 million class action settlement meant to reimburse buyers of the affected vehicles. Federal investigators concluded that Hyundai and Kia had attempted to "tilt the market" in their favor by overstating the fuel efficiency of their fleet of vehicles.

fuel system component decisions that were not based upon safety considerations.

One such decision relates to the manner in which the Kia Soul encloses the vehicle's fuel pump.[2] The Kia Soul has a service port located inside the passenger compartment of the vehicle, immediately beneath the cushions of the rear seat. A passenger seated on the rear seat is essential sitting over a large hole through which access to the vehicle's fuel pump is provided.

The fuel pump service cover used on the 2010 Kia Soul is made entirely of polymer. A photograph of the service cover found beneath the rear seat of an exemplar 2010 Kia Soul is shown in Figure 12.

Figure 12. 2010 Kia Soul service cover.

Given the widespread use of safety features like fuel tank shields throughout the automotive industry, including on other Kia vehicles, it is

[2] Another result of omitting a metal fuel tank shield and fuel tank mounting straps from the Kia Soul would be that the vehicle weight would be reduced.

difficult to justify the complete lack of protective devices on the Kia Soul's fuel tank. As explained further below, the Kia defendants' failure to take advantage of safety features used by other automakers to protect the fuel tank of the 2010 Kia Soul was a reckless departure from industry standards.

ANALYSIS:

From my analysis it is my opinion is that the 2010 Kia Soul in which Mr. Sims lost his life has several defects that render the vehicle unsafe. Absent these defects, I believe that on a more probably than not basis, based upon a reasonable degree of automotive-engineering certainty, the fuel tank of the vehicle would not have ruptured following the April 28, 2013 collision and that no vehicle fire would have resulted.

The measurements from the base of the Yield sign align nearly perfectly with the tear observed in the vehicle's tank as shown in figures 13, 14 and 15.

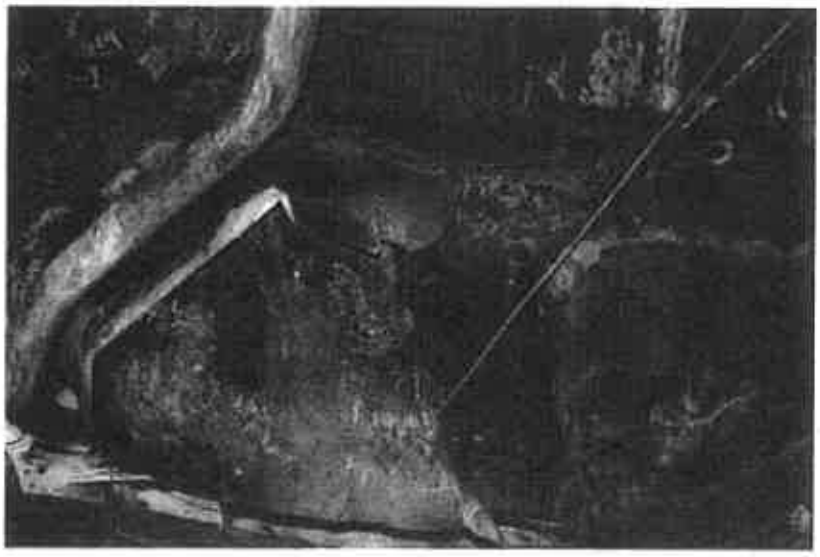


Figure 13. Verifact Corporation photograph 193 2010 Kia 1-15.
Tear in the fuel tank of the 2010 Kia Soul.

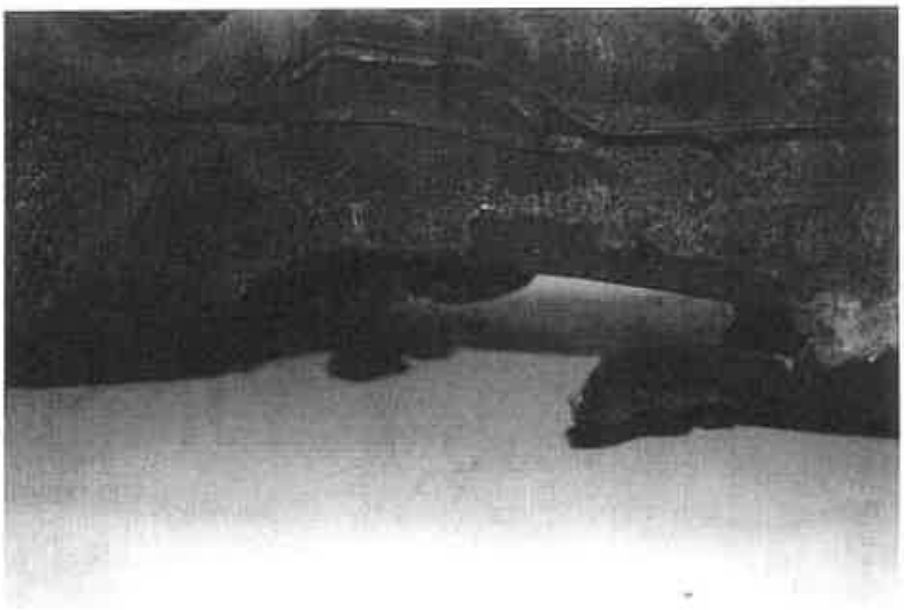


Figure 14. Verifact Corporation photograph 193 2010 Kia 1-15.
Tear in the fuel tank of the 2010 Kia Soul viewed from the rear.

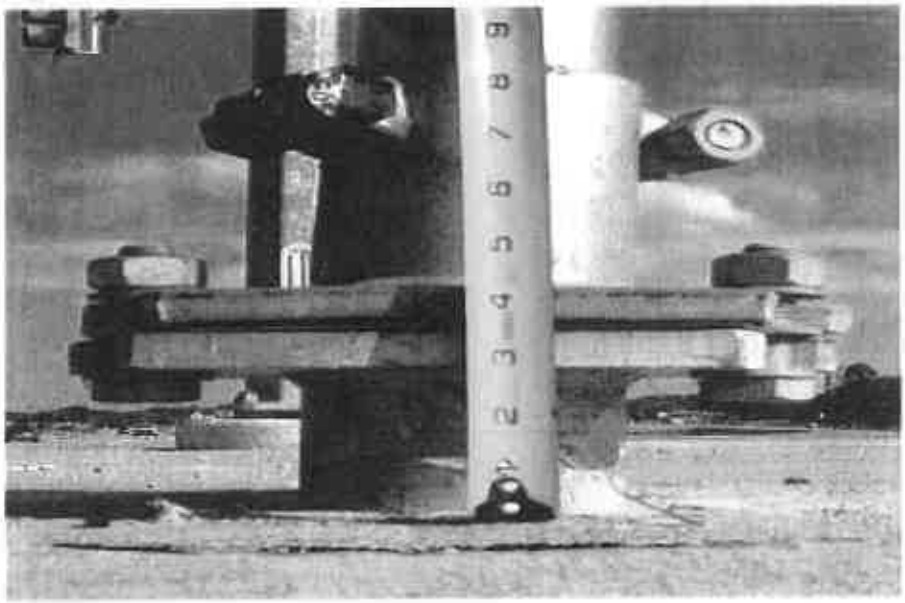


Figure 15. Yield sign base in an unidentified photograph provided by Mr. McLean.

The base of the "Yield" sign measures less than 3.5 inches in height.

Collisions with road signs are certainly foreseeable.[3] The fact that the signs are constructed to "break away" demonstrates that they are designed with potential collisions in mind. Moreover, at least one of the Kia defendants recently admitted that collisions with road signs are something it understands can occur in the ordinary course of the usage of its vehicles. As a result, Kia certainly should have designed the 2010 Kia Soul in a manner that would prevent its fuel tank from rupturing should it collide with roadway obstructions such as this road sign base.

The Kia Soul's fuel tank has a ground clearance of approximately 210 millimeters (slightly more than 8 inches). This would provide approximately 4.5 inches in ground clearance between the fuel tank of the vehicle and the base of the sign under normal ride height conditions. The vehicle's movements following the collision likely lessened the ground clearance between the fuel tank and the base of the sign. However, there are feasible, commonly-utilized design alternatives that would prevented the fuel tank from directly contacting base of this obstruction and, if the break-away base could not be avoided, would have allowed the energy of the impact to be redirected or absorbed by structures other than the fuel tank.

One obvious design fix would have been to use a fuel tank shield. Tank shields are designed to protect the against the kind of impacts that this Kia Soul encountered as it passed over the base of the traffic sign. As Kia's own

[3] No questions collisions with other vehicles and light poles are foreseeable events, as well. The FMVSS standards require automakers to perform crash testing simulating both events.

materials acknowledge, tank shields and skid plates are intended to protect a fuel tank from impacts from roadway debris such as rocks, tree stumps, and in this instance, the base of a road sign. The use of a fuel tank shield would not have hindered the performance of the vehicle and was certainly feasible considering the widespread use of such shields on other vehicles in the automotive industry, including on similar types of cars.

In reviewing the dynamics of this crash, I believe that a fuel tank shield would have prevented the tank from rupturing for a several reasons. First, the shield would have helped secure the fuel tank following the collision with the Odyssey, and later the light pole, thereby preserving the limited ground clearance between the fuel tank and the road sign base. This is a critical feature considering that the difference between the tank hitting the breakaway base, and safely passing over it, was a literally a matter of inches.

Following the initial crash, the fuel tank deformed downward some distance from its mounted position and was therefore closer to the roadway. Had a shield been in place, I believe, on a more probable than not basis, based upon a reasonable degree of automotive engineering certainty, that ground clearance would not have been lessened and the road sign base would have been narrowly avoided.

However, even if break-away based could not be avoided through the use of a tank shield, I still believe it would have prevent the fuel tank from rupturing. Again, the break-away T-base very nearly missed impacting the fuel tank as the Kia Soul was passing over it. Therefore, I believe that fuel tank shield would have absorbed or redirected the energy from the impact with the break-away sign base away from the fuel tank. This type of impact is the very

purpose automakers designed fuel tank shields and skid plates. Had the 2010 Kia Soul been equipped with a fuel tank shield or skid plate, I do not believe that its fuel tank would have ruptured even if a collision with the base of the yield sign could not be avoided.

Another design flaw in the Kia Soul relates to its ground clearance. As described above, the Kia Soul's ground clearance is stated to be 210 millimeters (roughly 8 inches). However, the cavity in which the fuel tank is mounted has an additional space available allowing the tank to be mounted even higher from the ground. Considering that the Kia Soul's fuel tank is unguarded it was important for the Kia defendants to take measures to ensure that ground clearance for its fuel tank was maximized.

It is my opinion that the 2010 Kia Soul failed to maximize the ground clearance provided for its fuel tank. This is extremely dangerous considering that vehicle's tank is not protected by any of the accepted methods used by automakers. If the Kia defendants had taken advantage of the additional space provided by the body of the Kia Soul to increase the ground clearance of the vehicle fuel tank, I believe that the road sign base would have been avoided altogether.

Another, commonly-used method to preserve the ground clearance of a vehicle's fuel tank is the use of fuel tank mounting straps. The Kia defendants have acknowledged that fuel tank straps are a more robust method to secure a vehicle's fuel tank than simply bolting the tank to the body of the vehicle. One of KMC's engineers recently testified that the 2010 Kia Soul did not use fuel tank straps due to the tanks size and because of concerns with trying to minimize the weight of the fuel tank.

Later, when the 2014 Kia Soul was introduced, it came equipped with fuel tank mounting straps. The same KMC engineer testified that the design change was made to account for the added volume and weight of the 2014 tank and because "direct mounting" – the method used to attach the 2010 fuel tank—would not provide enough support. This is difficult to justify considering that the 2014 fuel tank is a mere 2 liters larger than the 2010 fuel tank, meaning that the increased volume would provide a weight increase of 4.4 pounds.

The bottom line is that the Kia defendants either knew, or should have known, that 2010 Soul's fuel system called for the use of fuel tank straps, rather than a direct mounting. From the benchmarking analysis undertaken during the development of the Kia Soul, it would have been obvious that each of the vehicles considered to be competitors (Nissan Cube, Scion XB and Suzuki SX 4) either used fuel tank mounting straps or a fuel tank shield.

It is my opinion that use of fuel tank mounting straps would have helped to preserve the ground clearance of the fuel tank of the 2010 Kia Soul in which Mr. Sims lost his life. As stated above, even a minimal change in the height of the fuel tank as it passed over the base of the tank would have resulted in the avoidance of the tank rupturing in this instance.

The fact that the Kia defendants elected to forego the use of mounting straps due, at least in part, to minimize the weight of the vehicle is troubling. Passenger safety should always be given paramount consideration rather than issues related to vehicle performance or fuel efficiency. Here, had the fuel tank been properly secured, the fuel tank would not have deformed downward

and would have avoided contacting the base of the Yield sign. Consequently, failure to use fuel tank mounting straps is another defect in the 2010 Kia Soul.

In addition to the above-described failures related to protecting the vehicles fuel tank from rupturing, the 2010 Kia Soul has additional dangerous characteristics that impact passenger safety. The decision to use a thin piece of polymer as a maintenance cover to separate the top of the fuel tank and the passengers seated in the rear seat of the vehicle is one glaring example. Reasonable engineering principles dictate that if a pathway between the vehicle's fuel tank and the inside of the passenger cabin is created, an automaker should, at a minimum, take steps to ensure that a fuel fire could not immediately enter into the passenger cabin if one should occur.

Here, the Kia defendants elected to utilize a piece of combustible polymer for access to the fuel tank fuel pump module and to act as the barrier between the vehicle's fuel tank and the inside of the car. The polymer is not designed to be fire resistant. That decision was extremely dangerous, resulting in another defect to the 2010 Kia Soul.

After reviewing the subject vehicle, it is clear that the fuel tank service cover used on the 2010 Kia Soul did not withstand the vehicle fire, meaning that the fire intruded beneath rear seat where Mr. Sims was seated. Therefore, the use of a polymer fuel tank service cover on the 2010 Kia Soul contributed, at least in part, to the injuries sustained by Mr. Sims.

Another concern with the 2010 Soul relates to the fact that none of the rear-seated passengers were able to exit the vehicle after the vehicle came to a

stop post collision. It is a recognized maxim of crashworthiness[4] that if passengers survive the initial collision, he or she should not die in a subsequent vehicle fire.

The evidence here shows that, despite surviving the collision with the Honda Odyssey, Mr. Sims was unable to escape the vehicle before it was consumed by the fire. Given the lack of serious injuries sustained by any of the surviving passengers of the two vehicles involved in the crash, it is unlikely that Mr. Sims sustained serious injury related to the collision.

The reason Mr. Sims was unable to escape from the fire was that none of the rear doors, or the rear hatch, were operable following the crash. Several bystanders attempted to pry open the doors without success. In my opinion, the failure of the 2010 Kia Soul to provide the rear seat passengers with an opportunity to egress from the vehicle following the collision, shows that it was not crashworthy. Again, motorists who survive a collision should never die in a subsequent vehicle fire. It is my opinion that the 2010 Kia Soul was not reasonably crashworthy.

Based upon the laws of physics, my engineering education, experience and my engineering judgment, as well as my analysis of the facts and data available in this case, including inspections of the subject vehicle and an undamaged 2010 Kia Soul exemplar vehicle, I am able to offer several opinions bearing on this case.

[4] Automakers are responsible for designing vehicles that can both avoid crashes and that afford their passengers a reasonable measure of safety in the event that a collision is unavoidable.

CONCLUSIONS:

A. It is my opinion that the 2010 Kia Soul is defective in numerous respects that directly caused the fuel fire that claimed the life of Henry Sims, Sr. The defendants failed to take steps necessary to ensure that the fuel tank would not be compromised in the event of a collision. It is my opinion that feasible design changes, such as the inclusion of a fuel tank shield, an increase in the ground clearance of the tank, or the use of fuel tank mounting straps, would have prevented the fuel tank of the vehicle from rupturing. Another serious defect relates to the decision to use a thin polymer cover, rather than metal covers used on other Kia models, to seal the fuel pump access port of the vehicle.

   This conclusion is based upon a review of all the previously listed materials, the subject and exemplar vehicle inspections, the laws of physics, my engineering education, experience and my engineering judgment.

B. The 2010 Kia Soul is also unreasonably dangerous because it is not crashworthy. Specifically, the passengers of the vehicle were not afforded a reasonable opportunity to escape the vehicle despite surviving the initial collision and notwithstanding the robust efforts of bystanders to assist in their escape. Under circumstances such as those present during this collision, it cannot be justified that the three

passengers in this vehicle were unable to escape before burning to death.

This conclusion is based upon a review of all the previously listed materials, the subject and exemplar vehicle inspections, the laws of physics, my engineering education, experience and my engineering judgment.

ALTERNATIVE DESIGNS:

The following design alternatives would within a reasonable degree of engineering probability have prevented or minimized the release of any significant amount of fuel from the fuel tank:

1. Kia should have taken advantage of the additional space provided by the body of the Kia Soul to increase the ground clearance of the vehicle fuel tank to avoid striking the road sign base which would have avoided the fuel tank damage and the subsequent fire altogether.

   This conclusion is based upon a review of all the previously listed materials, the subject and exemplar inspections, the laws of physics, my engineering education, experience and my engineering judgment.

2. Kia should have installed a fuel tank shield which would have absorbed or redirected the energy from the impact with the break-away sign base away from the fuel tank. This is the very purpose automakers designed skid plates. Had the 2010 Kia Soul been equipped with a fuel tank shield or skid plate, I do not believe that its fuel tank would have ruptured even if a collision with the base of the Yield sign could not be avoided.

   This conclusion is based upon a review of all the previously listed materials, the subject and exemplar inspections, the laws of physics, my engineering education, experience and my engineering judgment.

3. Had Kia used fuel tank mounting straps, rather than direct mounting of the fuel tank, the downward deformation of the fuel tank would have been minimalized preserved the ground clearance of the fuel tank of the 2010 Kia Soul. As stated above, even a minimal change in the height of the fuel tank as it passed over the base of the tank would have resulted in the avoidance of the tank rupturing in this instance.

   This conclusion is based upon a review of all the previously listed materials, the subject and exemplar inspections, the laws of

physics, my engineering education, experience and my engineering judgment.

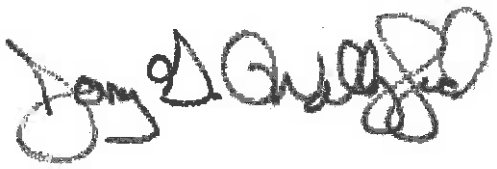
4. Had Kia used a metallic fuel tank service cover on the 2010 Kia Soul it would have effectively withstood the vehicle fire, meaning that the fire would not have intruded beneath rear seat where Mr. Sims was seated. Therefore, the use of a polymer fuel tank service cover on the 2010 Kia Soul contributed, at least in part, to the injuries sustained by Mr. Sims.

   This conclusion is based upon a review of all the previously listed materials, the subject and exemplar inspections, the laws of physics, my engineering education, experience and my engineering judgment.

The conclusions and opinions expressed in this report are based on a review of the documents and photographs listed above, inspection of the subject and exemplar vehicle. These conclusions are also based upon a review of all the previously listed materials, the laws of physics, my engineering education, experience and my engineering judgment. All opinions herein have been expressed to a reasonable degree of engineering probability. If any additional materials or facts become available the above opinions may be subject to amendment or supplementation.

Supplied with this report is a copy of my resume, a copy of my current Rule 26(b) testimony, a copy of Verifact Corporation's current fee schedule and a CD containing all of the photographs taken by Verifact Corporation in this matter. If you have any questions or comments please contact me.

VERIFACT CORPORATION
Texas Board of Professional Engineers
Registration No. F-000153



Jerry G. Wallingford, P. E.

JGW:mas

14-112-FP

UNITED STATES DISTRICT COURT

FOR THE NORTHERN DISTRICT OF TEXAS

Henry Lee Sims, Jr., et al., Plaintiff, v. Kia Motors America, Inc., et al., Defendant.	No. 4:14-CV-045-A

TRANSCRIPT SUBJECT TO CONFIDENTIALITY AGREEMENT

DEPOSITION OF JEFFREY D. COLWELL, Ph.D., P.E.

May 6, 2015

8:57 a.m.

Phoenix, Arizona

Prepared by:

Marcella Daughtry, RPR

Arizona CR No. 50623

THE WITNESS: I think what the design intent is is to have something -- a product be reasonably safe and still perform its job, have utility, and be affordable to be useful. When I buy a car, that's what I expect. I don't expect a car to be perfectly safe, and I know that I have responsibility as part of the safety process.

Q BY MR. McLEAN: With regards -- back to this particular crash. We were talking a little bit about your opinions regarding the propagation of the fire into the subject vehicle. And my understanding of your testimony is there was a variety of possible routes that the fire took before it entered the passenger cabin, correct?

A Yes. There was a number of possible paths for the fire to spread to the interior.

Q But your -- regardless of which path the fire took, there's no question in your mind that the fire entered the passenger cabin?

A Yes. Clearly the fire entered the passenger cabin.

Q And as a result, the individuals seated in the passenger cabin died?

A Yes. The result, that they did not exit the vehicle and were in the vehicle when the fire spread

into the vehicle, yes, that resulted in their fatalities.

Q And you read the -- the autopsy reports for all three of the individuals who were seated in the rear seat of the vehicle, correct?

A I have skimmed through them, yes.

Q Well, I mean, in skimming through them, they confirmed the obvious, that all three died of fire-related injuries, right?

MR. KELLY: Object to form, outside the scope for this individual's expert testimony.

Q BY MR. McLEAN: Go ahead.

A Yeah, I don't have any opinions about their cause of death.

Q But that's what you saw in their autopsy? That was my question.

MR. KELLY: Object to form.

Q BY MR. McLEAN: Go ahead.

A Obviously they were -- I didn't even see the autopsy report. I could see from the photographs that they were in the car when it was on fire.

Q Okay. And forgive me if I've asked this, you are not going to be able to testify with any certainty as to how long it took specifically for the fire to enter the passenger cab, correct?

to attempt to reach the interior. One is through the top of the sending unit, through the access cover port through the seat cushion. The other is if the heat from the fire can go around the fuel tank and attack both the top of the sending unit and the access port at the same time.

Q BY MR. McLEAN: Okay. But my question is a little different. The barrier between the top of the fuel tank and the inside of the passenger compartment is this piece of plastic?

MR. KELLY: Object to form.

THE WITNESS: Well, I disagree with that. In this case, there is a tear in the bottom of the tank, so there is now different ways which the fire could spread.

Q BY MR. McLEAN: I'm not talking in terms -- let me back up and just say in terms of pure -- not fire propagation, just the only thing between the passenger compartment and the top of the fuel tank in a pristine 2010 Kia Soul is this plastic cover?

A Yes, that's true. Above the fuel tank there's this plastic cover.

Q How thick is the plastic cover?

A It's about one inch thick.

Q Did you see in any of the materials provided

to you from Kia that they did any testing on the fire resistance of that plastic cover?

A I did not see any testing of that kind, no.

Q All right. Now, you mentioned, going back to your -- what -- your area of opinion, that given the fact that the fuel tank was torn on the bottom, you believe that the fuel tank itself, as well as the fuel tank sending unit, would act as barriers between the fire and the inside of the passenger compartment?

A Well, they -- they are a feature of the design that's going to influence how the fire spreads into the vehicle.

Q It's a potential barrier, is that a better way of saying it?

A Yes. They are each -- they each offer some physical barriers to fire spread.

Q You also testified that another pathway for the fire would be to go around the fuel tank and attack both the fuel sending unit and the fuel pump access cover at the same time?

MR. KELLY: Object to form.

THE WITNESS: The heat from the fire could -- could travel in between that airspace, so then, yes, the heat from the fire could then interact with both the fuel tank access cover and the top of the

sending unit.

Q BY MR. McLEAN: All right. Now, were you able to ascertain what happened to the fuel pump access cover after the fire started in this case?

A No. It is missing from the -- from the port it's normally sitting on.

Q Does that -- what does that tell you?

A It was probably consumed by the fire.

Q All right. Melted essentially. Is that fair?

A Melted and/or consumed by combustion.

Q Okay. It -- it's no longer where it would have been placed had there not been a fire; is that fair?

A Correct.

Q And can you -- can you ascertain at what point during the fire that fuel pump service cover combusted?

A In my opinion, that was fairly late in the fire.

Q All right. How late?

A Well, again, just fairly late. This is before he has -- the fire burned. It was extinguished. It was much closer to the extinguishment point than it was to the initiation point.

Q All right. Now, are you able to ascertain whether the fuel pump service cover melted before or

after the passengers in the car had died?

A That's difficult to quantify, but, again, I think it was relatively late.

Q Okay. Now, you mentioned that there were a couple of pathways for fire to interact with the fuel pump service cover. It could have -- I guess what you said is it could go through the tank and through the fuel sending unit, and then eventually it would get to the service cover. That's one pathway, right?

A Correct.

Q Another pathway is for it to go on the outside of the tank and directly interact with the fuel pump service cover, right?

A Yes.

Q Now, you understand that when this fuel tank was struck by the yield sign, there was some deformation of the tank within the -- within the cavity within which it was placed?

MR. KELLY: Object to form.

THE WITNESS: I know there's allegations of deformation in the fuel tank.

Q BY MR. McLEAN: Let me ask it to you this way. When you inspected the vehicle, did you see any indication that the tank was deformed as a result of striking the flange?

Office of Chief Medical Examiner
Tarrant County Medical Examiner's District
Tarrant County, Texas
200 Feliks Gwozdz Place, Fort Worth, Texas 76104-4919
(817) 920-5700 FAX (817) 920-5713

AUTOPSY REPORT

NAME: Unidentified Male
Age: Pending years
Height: 69 inches (residual)
(residual)

CASE NO: 1305475
Sex: Male
Weight: 152.6 lbs

I hereby certify that on the twenty ninth day of April 2013, beginning at 1000 hours, I, Nizam Peerwani, M.D., pursuant to Article 49.25 of Code of Criminal Procedure, State of Texas, performed a complete autopsy on the body of an Unidentified Male at the Tarrant County Medical Examiner's District Morgue in Fort Worth, Texas and upon investigation of the essential facts concerning the circumstances of the death and history of the case as known to me, I am of the opinion that the findings, cause and manner of death are as follows:

FINDINGS:

I. **Investigative findings:**
   A. Decedent was a left rear passenger in a motor vehicle that was broad-sided along passenger side with post-crash vehicular fire.
   B. Medical history: Unknown

II. **Postmortem findings:**
   A. Fire fatality:
      1. Acute respiratory failure with:
         a. Pulmonary vascular congestion, bilateral, severe, with edema
         b. Prominent soot deposition along larynx and tracheobronchial tree
         c. Generalized visceral congestion
      2. Cherry red discoloration of soft tissues and viscera consistent with inhalation of carbon monoxide.
      3. Extensive thermal damage:
         a) Destruction of both scalp with exposure and charring of outer cortical bone.
         b) Charring of soft tissues with disfigured face and partially collapsed desiccated eyeballs.
         c) Near-global charring with:
            (1) Multiple heat lacerations of anterior torso and extremities.

Exhibit F-62

1305475
Unidentified Male

FINDINGS (Continued):

(2) Near total destruction of soft tissues of right anterior chest with heat fractures of 5th through 8th right anterior ribs.
(3) Full-thickness destruction of abdominal wall with exposed and protruding small as well as large bowel.

d) Destruction of soft tissues of left and right knee regions with exposed distal femur and proximal tibia.
e) Heat fractures including:
(1) Distal right radius and ulna.
(2) Distal left radius and ulna.

B. Identification established by:
1. Postmortem toxicology with blood concentration of:
a) Carboxyhemoglobin = 14.9%.
b) Ethanol = Negative.
c) Drug screen = Negative.

C. Hypertensive atherosclerotic cardiovascular disease with:
1. Cardiomegaly (weight = 431 gms).
2. Concentric left ventricular hypertrophy.
3. Focal over 75% stenosis of left anterior descending branch.
4. Healed focal infarct of apex of let anterior papillary muscle.
5. Arteriolonephrosclerosis, moderate.
6. Generalized atherosclerosis, mild-to-moderate.

D. Nodular hyperplasia of prostate gland, moderate.

CAUSE OF DEATH: INHALATION OF SMOKE AND CARBON MONOXIDE DUE TO POST-CRASH VEHICULAR FIRE

MANNER OF DEATH: ACCIDENT

Signature

Nizam Peerwani, M.D.
Chief Medical Examiner

1305475
Unidentified Male

GROSS ANATOMIC DESCRIPTION

I. CLOTHING AND PERSONAL EFFECTS: The body is presented to the Morgue wrapped in a white sheet, secured in a white body bag.

II. THERAPEUTIC INTERVENTION: None

III. EXTERNAL BODY DESCRIPTION: The body is that of a normally developed adult black male with the stated age of years with a residual body length of 69 inches and residual body weight of 152.6 pounds. Body presents extensive thermal damage with Destruction of both scalp with exposure and charring of outer cortical bone. Charring of soft tissues with disfigured face and partially collapsed desiccated eyeballs is observed. There is near-global charring with multiple heat lacerations of anterior torso and extremities, near total destruction of soft tissues of right anterior chest with heat fractures of 5th through 8th right anterior ribs as well as full-thickness destruction of abdominal wall with exposed and protruding small as well as large bowel. Also observed is destruction of soft tissues of left and right knee regions with exposed distal femur and proximal tibia. There are heat fractures noted including distal right radius and ulna as well as distal left radius and ulna. External genitalia present dessicated charred male genitalia. The back reveals charring.

SCARS: Not discernible

TATTOOS: Not discernible

IV. INTERNAL EXAMINATION

1. INTEGUMENTS: A Y-shaped thoraco-abdominal incision is made and the organs are examined in situ and eviscerated in the usual fashion. The subcutaneous fat is normally distributed, moist and bright yellow. The musculature of the chest and abdominal area reveal extensive thermal damage.

2. SEROUS CAVITIES: The chest wall is intact without fractures of ribs, sternum or clavicles. Pleura and peritoneum are congested, smooth and glistening devoid of adhesions or effusion. There is no scoliosis, kyphosis or lordosis. The left and right diaphragms are in their normal location and appear

grossly unremarkable. Pericardial sac is intact and contains normal amount of serous fluid.

3. **CARDIOVASCULAR SYSTEM:** The heart is enlarged and weighs 431 gms and there is left-sided chamber hypertrophy without dilatation. Left ventricular wall is 2.1 cms and the right 0.5 cms. Cardiac valves are unremarkable with the aortic, mitral, pulmonary and tricuspid valves having a circumference of 7, 9, 7.5 and 11 cms respectively. The coronary ostia are in the normal anatomical location leading into patent coronary arteries with focal over 75% stenosis of left anterior descending branch. Right dominant circulation is present. The endocardial surface is smooth without thrombi or inflammation. Sectioning of the myocardium presents no gross evidence of acute ischemic changes. Focal small scar of left anterior papillry muscle is observed. The aortic arch along with the great vessels presents mild-to-moderate generalized atherosclerosis. Congenital cardiac anomalies are absent.

4. **PULMONARY SYSTEM:** The neck presents an intact hyoid bone as well as thyroid and cricoid cartilages. Larynx and proximal trachea appear grossly unremarkable except for presence of dense soot. Both the musculature and the vasculature of the anterior neck are unremarkable. Trachea and spine are in the midline presenting no traumatic injuries or pathological lesions.

Lungs are hyper inflated and together weigh 1295 gms. Both the lungs appear severely congested and edematous and on sectioning frothy edema fluid can be easily expressed. There are no gross pneumonic lesions or abnormal masses identified. The tracheobronchial tree contains large amounts inspissated frothy edema fluid with dense deposits of smoke and sooty material along the trachebronchial tree and pulmonary arterial system is unremarkable without thrombo-emboli. Pleural surface pink with mild anthracosis.

5. **GASTROINTESTINAL SYSTEM:** Esophagus is intact with normal gastro-esophageal junction and without erosions or varices. Stomach is also normal without gastritis or ulcers. Stomach is devoid of food particles. Loops of small and large bowel appear grossly unremarkable. The appendix is unremarkable.

Liver is of normal size and weighs 1790 gms presenting smooth glistening surface. On sectioning the hepatic parenchyma is reddish, homogeneous and congested. Gallbladder is unremarkable containing 20 mL of green bile. There is no evidence chronic cholecystitis or lithiases. Pancreas weighs 170 gms with yellow lobulated cut surface and without acute or chronic pancreatitis.

1305475
Unidentified Male

6. GENITOURINARY SYSTEM: Left kidney weigh 174.9 gms and the right kidney weighs 136.6 gms. Capsules strip with difficulty presenting a granular reddish brown cortical surface. On sectioning the cortex presents a reduced thickness of 0.4 cms above the medulla. The renal columns of Bertin extend between the well demarcated pyramids and appear unremarkable. The medulla presents normal renal pyramids with unremarkable papillae. The pelvis is of normal size and lined by gray glistening mucosa. There are no calculi. Renal arteries and veins are normal.

The ureters are of normal caliber lying in their course within the retro peritoneum and draining into an unremarkable urinary bladder containing 100 mL of urine. The ureters are of normal caliber lying in their course within the retro peritoneum and draining into an unremarkable urinary bladder containing 100 mL of urine. External genitalia are charred. Internal genitalia reveal an enlarged prostate with gray rubbery firm nodular surface.

7. HEMATOPOIETIC SYSTEM: Spleen weighs 136.6 gms presenting a grey smooth capsule and on sectioning reveals a reddish-brown soft splenic pulp. There is no lymphadenopathy. Bone marrow is red and firm and thymus gland is involuted.

8. ENDOCRINE SYSTEM: Thyroid gland is of normal size and shape presenting two well-defined lobes with connecting isthmus and a beefy brown cut-surface. There are no goitrous changes or adenomas present. Adrenal glands are of normal size and shape and sectioning present no gross pathological lesions. Pituitary gland is encased within and intact sella turcica and presents no gross pathological lesions.

9. CENTRAL NERVOUS SYSTEM: There is total destruction of both scalp and top of the calvarium

Brain weighs 1310 gms presenting prominent congestion of the leptomeninges. Overlying dura is intact and unremarkable. Cerebral hemispheres reveal a normal gyral pattern with moderate-to-severe global edema. Brainstem and cerebelli show similar changes with bilateral mild uncal and cerebellar tonsillar notching. Circle of Willis is patent presenting no evidence of thrombosis or berry aneurysm. On coronal sectioning of the brain the ventricular system is symmetrical and contains clear cerebrospinal fluid. There are no space occupying lesions present. Spinal cord is not examined.

1305475
Unidentified Male

SPECIMENS AND EVIDENCE COLLECTED

1. 30 mL of aortic blood, 30 mL of femoral vein blood, and 30 mL of urine for toxicology.
2. Blood and lung apices for volatiles.
3. Representative tissue sections in formalin.
4. 10 digital exam photos
5. Blood card
6. Six X-Rays

Date of Exam	April 29, 2013
Expected Date Completion:	July 29, 2013
Dictated/Typed:	May 5, 2013
Completed:	May 14, 2013

NSP:np

ME-39 REV. 12/10

Office of Chief Medical Examiner

Tarrant, Denton, Johnson and Parker Counties, Texas

200 Feliks Gwozdz Place, Fort Worth, Texas 76104-4919 ◆ (817) 920-5700

Case No: 1305475

Examiner: Perna

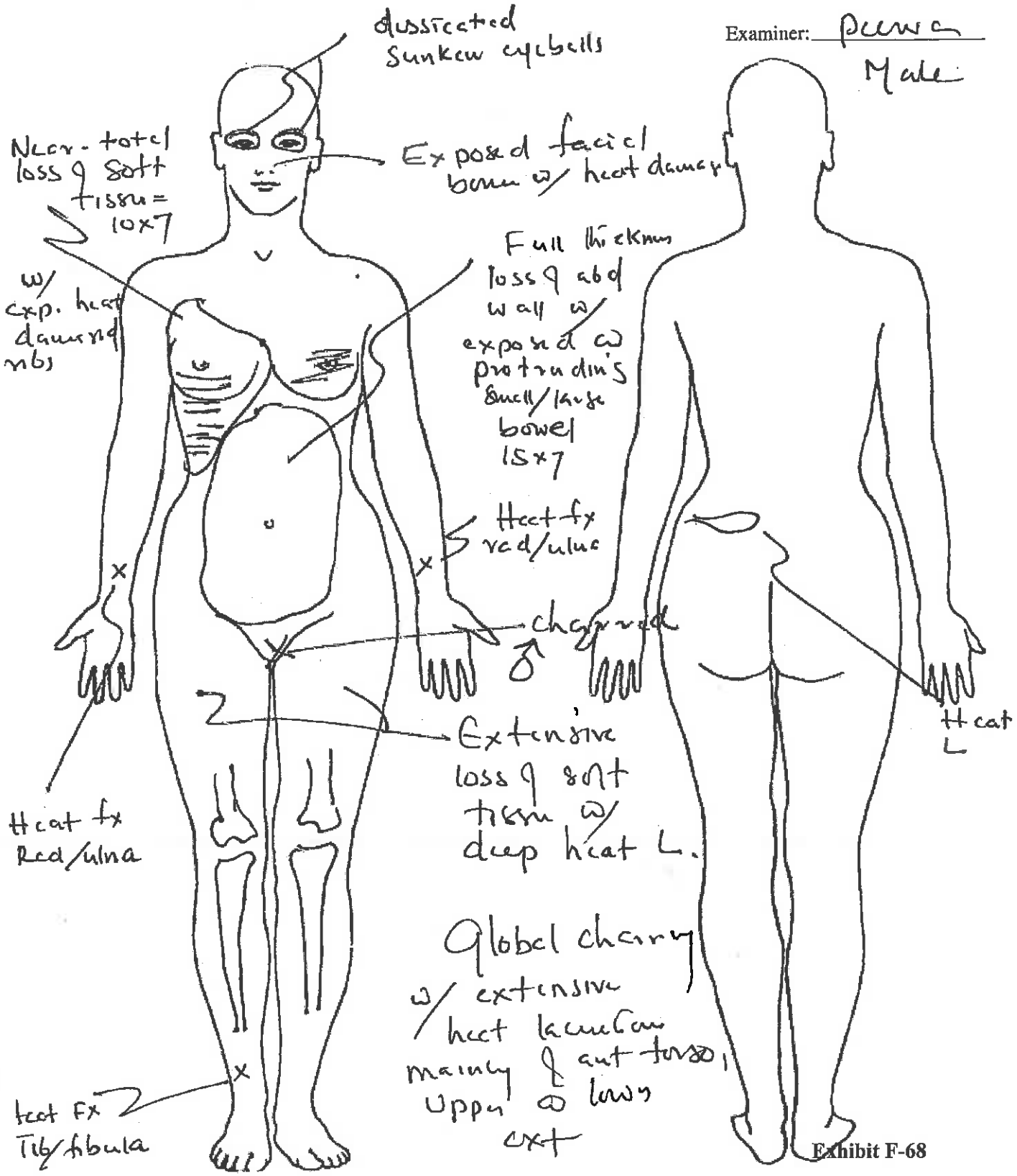


Exhibit F-68

Toxicology Test Results

Office of Chief Medical Examiner
Toxicology Laboratory Service
200 Feliks Gwozdz Place
Fort Worth, Texas 76104

Name: **Unidentified Remains (5475)**
Case Number: **1305475**
Toxicology Work Number: **1301103**

Nizam Peerwani, M.D., DABFP
Chief Medical Examiner
Robert Johnson, PH.D., DABFT
Chief Toxicologist
Priority: **1**
Service Request Number: **003**

Specimen	Drug	Result	Drug Amount	Performed By
FEMORAL BLOOD	ETHANOL	NEGATIVE		T. FLOWERS
URINE	AMPHETAMINE ELISA	NEGATIVE		B. LANDRY
URINE	METHAMPHETAMINE ELISA	NEGATIVE		B. LANDRY
URINE	THC ELISA	NEGATIVE		B. LANDRY
URINE	OPIATES ELISA	NEGATIVE		B. LANDRY
URINE	COCAINE ELISA	NEGATIVE		B. LANDRY
URINE	BENZODIAZEPINES ELISA	NEGATIVE		B. LANDRY
URINE	OXYCODONE ELISA	NEGATIVE		B. LANDRY
URINE	ACID	NEGATIVE		C. WHEELER
URINE	BASE	NEGATIVE		C. WHEELER
AORTA BLOOD	CARBON MONOXIDE	POSITIVE	14.9%	B. LANDRY
BLOOD	VOLATILE	NEGATIVE		J. HO
LUNG	VOLATILE	NEGATIVE		J. HO

Report Prepared By: _____

Approved By: _____

Approved Date: 5/10/13

Exhibit F-69

TARRANT COUNTY MEDICAL EXAMINER'S DISTRICT
SERVING TARRANT, PARKER, & DENTON COUNTIES
Investigator's Report

CASE #: 1305475 Tarrant TYPE: Jurisdiction IDENTITY: Unidentified

NIZAM PEERWANI, M.D.
CHIEF MEDICAL EXAMINER

MICHAEL FLOYD
CHIEF FORENSIC DEATH INVESTIGATOR

DECEASED: Unidentified Remains (5475)
ADDRESS:
AGE: BIRTH DATE: MARITAL STATUS: Unknown
PHONE: RACE OR COLOR: Unknown SEX: U
HEIGHT: WEIGHT:
SSN: MANNER OF DRESS:
OCCUPATION:
PLACE OF EMPLOYEMENT:

DATE OF DEATH: 4/28/2013 TIME OF DEATH: 14:07
PLACE OF DEATH DESCRIPTION: State Highway, public roadway
ADDRESS OF DEATH: 12000 Jacksboro Highway (West), Fort Worth, Texas 76135
HOSPITALIZED: No
ADMIT DATE: ADMIT TIME:
ENVIRONMENT CONDITION: Motor vehicle fire
CHARACTERISTIC OF PREMISES: Motor vehicle collision with fire

DATE/TIME M.E. NOTIFIED: 4/28/2013 15:45
ARRIVED: 4/28/2013
REPORTING PERSON: Det. Jensen
REPORTING AGENCY: Fort Worth Police Department
ADDRESS: 350 W. Belknap St, Fort Worth, Texas 76102
PHONE: (817)335-4222
PRONOUNCED DEAD BY:
PRONOUNCING AGENCY:
LAST TREATED BY:

DATE/TIME OF OCCURENCE: 4/28/2013 13:52
INJURY AT WORK: N0
PLACE OF OCCURENCE: Intersection of two public roadways
LOCATION: 7400 Hanger Cut Off 12000 Jacksboro Highway (West), Fort Worth, Texas 76135
TRAUMA RELATED: Yes

IDENTIFIED BY:
IDENTIFICATION TYPE:
DATE/TIME OF IDENTIFICATION:
IDENTIFICATION STATUS:
COMMENTS:
ADDRESS:
PHONE:

NEXT OF KIN NOTIFICATION DATE/TIME:
NOTIFIED BY:
NOTIFYING AGENCY:
NEXT OF KIN NAME:
RELATIONSHIP:
COMMENTS:
ADDRESS:
PHONE:
BODY TO: TCME CONVEYANCE: Accucare Mortuary Service
FUNERAL HOME:

Exhibit F-70

TARRANT COUNTY MEDICAL EXAMINER'S DISTRICT
SERVING TARRANT, PARKER, & DENTON COUNTIES
Investigator's Report

CASE #: 1305475 Tarrant TYPE: Jurisdiction IDENTITY: Unidentified

NIZAM PEERWANI, M.D.
CHIEF MEDICAL EXAMINER

MICHAEL FLOYD
CHIEF FORENSIC DEATH INVESTIGATOR

NAME OF RELEASING AUTHORITY:

RELATIONSHIP:

DISPOSITION OF PROPERTY:

MEDICAL INVESTIGATOR:
Steve White

Exhibit F-71

TARRANT COUNTY MEDICAL EXAMINER'S DISTRICT
SERVING TARRANT, PARKER, & DENTON COUNTIES

INVESTIGATOR'S REPORT

NIZAM PEERWANI, M.D.
CHIEF MEDICAL EXAMINER
Case Number: 1305475

MICHAEL FLOYD
CHIEF FORENSIC DEATH INVESTIGATOR
Case Type: Jurisdiction

DECEDENT'S NAME: Unidentified Remains (5475) AGE:
ADDRESS:
BIRTH DATE: MARITAL STATUS: Unknown PHONE:

CASE NO. 1305475 Tarrant

The decedent is an unknown age, unknown race, unknown sex, unidentified person that was located in the left rear passenger seat of a motor vehicle that was involved in a two vehicle collision on a State Highway in Fort Worth, Texas. Fort Worth Police and Fire Department responded to the scene where the driver and front right seat passengers were rescued, with the decedent, a rear middle seat tennage male passenger, and the right rear female passenger entrapped inside of the burning vehicle. Fort Worth PD Traffic Investigation Unit advises that the collision is presently under investigation and the at fault vehicle has yet to be determined as the collision occured in an intersection of two roadways.

(TCME CASES # 1305476 and 1305477 are companions to this case.)

SCENE PHOTOGRAPHS: Yes

NUMBER OF PHOTOGRAPHS: 66

TENTATIVE IDENTIFICATION:

Henry Lee Sims
B/M, 01/17/1933
Texas Drivers License # 02881488
Social Security # 461-52-9618
2805 Walker St
Fort Worth, Texas, 76105

DESCRIPTION OF BODY:

The decedent is viewed in the left rear passenger seat of a burned motor vehicle located along the side of 12000 Jacksboro Highway, in Fort Worth, Texas. The decedent is in a seated postion, globally burned, is in a pugilistic stance, and appears to have traumatic fire amputations of the right and left forearms and hands. Rigor and lividity are not observed due to the fire injuries.

MEDICAL HISTORY:

There is no known medical history for the decedent at the time of this report

DETAILS OF INCIDENT:

Case No. 1305475 Tarrant County Medical Examiner's Office

Fort Worth Police Department Traffic Investigative Unit Detective J. Jensen advises that at approximately 1352 hrs his agency began to receive 911 calls regarding a west bound White, 2010 Kia, Soul, Texas License Plate # CB4 G068 traveling on 12000 Jacksboro Highway (west), being struck broadside, on the passenger side, by a southbound Silver, Honda, Odyssey Van, Texas License Plate # DP3 W543 at the intersections of 12000 Jacksboro Highway (west) and 7400 Hanger Cut Off Rd. Jensen states that the Kia Soul was spun off the concrete roadway, jumped a traffic median in the intersection, tore off a yield traffic sign, which might have possibly opened the vehicles gas tank causing the vehicle to quickly catch fire. Jensen states that the driver of the Kia, Beverly Fuller, and the front right passenger, Alonda Harper successfully escaped from the burning vehicle, and that Henry Sims (left rear passenger seat), Walter King Jr (middle passenger seat), and Lillie Mae Smith (right rear passenger seat) were entrapped in the rear passenger compartment of the car by jammed rear left and right passenger doors, and the side curtain airbags which had allegedly deployed. Jensen advises that Fuller and Harper were transported from the scene to an area hospital for treatment of injuries. Jensen states that the at fault driver in the collision has yet to be determined and that the collision continues to be under investigation as to whether the Kia Soul or the Honda Odyssey van failed to yield the right of way at the intersection which is controlled by signal lights. Jensen states that a copy of his CR-3 Collision Report will be forwarded to TCME upon its completion.

This investigator and TCME FDI Investigator Robert Corley responded to the scene and met with Det. Jensen and Crime Scene Officer Glen Wilson. The silver Honda van was observed on a roll back tow truck being removed from the scene, and was observed to have front distributed impact damage and to be missing the front bumper. The burned motor vehicle containing the three fire fatalities was observed to have a square section of tubing consistent with a vehicles bumper found impaled through the right front passenger side door. The decedent was viewed as described above, and found alongside of a middle seat unidentified passenger (TCME Case # 1305477), and a right rear seat passenger (TCME Case # 1305476). The Fort Worth Fire Department was summoned to remove the right and left rear passenger doors as both were apparently jammed shut on the locking mechanisms during the collision. This investigator supervised the extraction of the three decedent's with the remains of a possible purse found at the feet of the unidentified person (TCME # 1305476). On opening the heavily burned purse this investigator located a 3/4 burned Texas Drivers License to a Lillie Smith, B/F, 07/19/1933. On removal of the middle unidentified person (TCME Case # 1305477) there were no forms of identification located under the body. As the decedent was prepared to be removed from the left rear passenger seat this investigator located a wallet under the decedent's right rear buttock. On opening the wallet this investigator located the Texas Drivers License (# 02881488) of Henry Lee Sims, B.M, 01/17/1933. Investigator Corley and I sifted the remains of the car as each body was removed and attempted to recover human remains believed to be associated with each person. Each unidentified body was individually tagged on scene to insure the correct case number was assigned to each decedent.

While on scene this investigator and Investigator Corley were approached by Kenneth Harper (817) 897-7746, who advised that he is the uncle of Walter King, Jr, who was believed to be the middle rear seat passenger in the car. Harper advised that the occupants of the Kia Soul had departed from the Stewart Chapel Church in Lake Worth, and had be on their way to a second church (name unknown) in Azle, Texas for a church function that after noon. Harper was explained TCME protocols and advises that his family will attempt to locate dental records for the middle decedent (TCME Case # 1305477).

Investigator Corley met with Carl Williams (817) 229-1413, who advised that his brother, Henry Lee Sims was believed to be the left rear seat passenger in the Kia Soul. Williams was explained TCME protocols and advised that he will attempt to locate medical and dental records for his brother who is believed to be TCME Case # 1305475.

UNIDENTIFIED BODY:

Case No. 1305475 Tarrant County Medical Examiner's Office
The decedent is believed to be a Henry Lee Sims, B.M, 01/17/1933

INSTRUMENT OF INJURY:

1) Vehicle: White, 2010 Kia, Soul, Texas License Plate # CB4 G068
Driver: Beverly Fuller

2) Vehicle: Silver, Honda, Odyssey Van, Texas License Plate # DP3 W543
Driver: Kevin Davis

FOLLOW UP INVESTIGATIONS REQUIRED

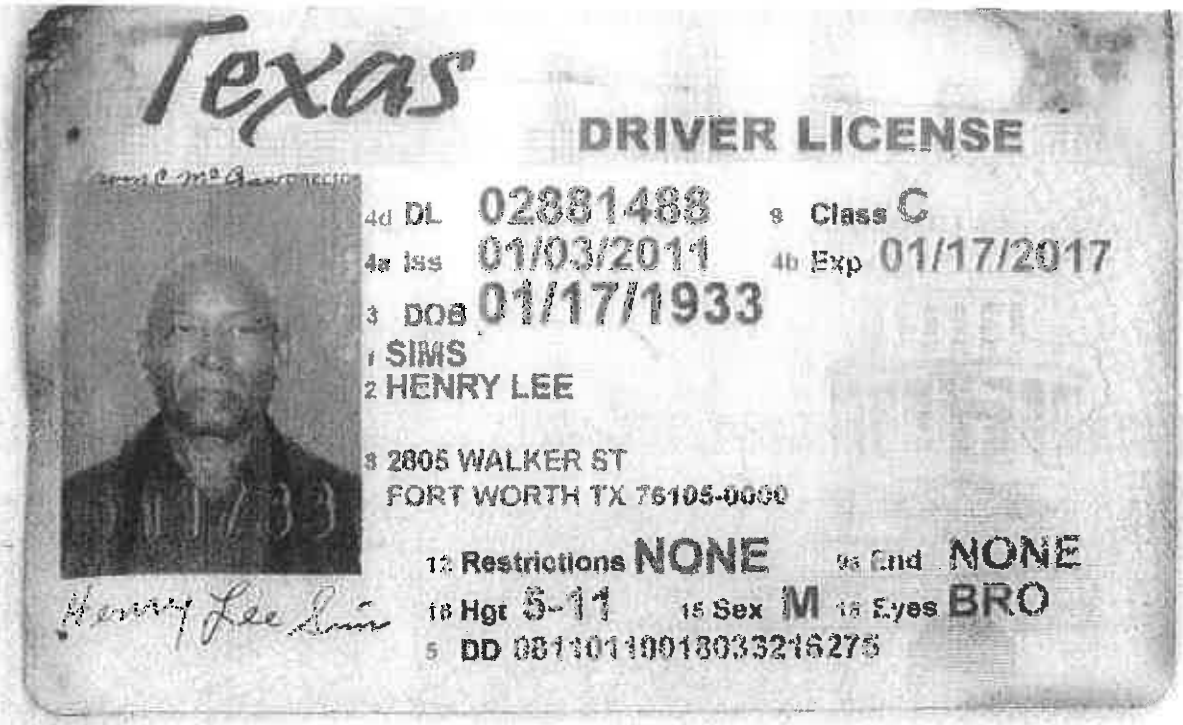
Positive identification of the decedent
Obtain funeral home info

COMMENTS:

A photocopy of the Texas Drivers License (# 02881488) of Henry Lee Sims, B.M, 01/17/1933 accompanies this case file.

_____
Steve White

Exhibit F-74



Texas

DRIVER LICENSE

4d DL 02881488 9 Class C

4a Iss 01/03/2011 4b Exp 01/17/2017

3 DOB 01/17/1933

1 SIMS

2 HENRY LEE

8 2805 WALKER ST
FORT WORTH TX 76105-0000

12 Restrictions NONE 13 End NONE

18 Hgt 5-11 15 Sex M 16 Eyes BRO

5 DD 08110110018033216275

Henry Lee Sims

True # 57430 1475

Exhibit F-75

In The Matter Of:

HENRY LEE SIMS, JR., ET AL v.
KIA MOTORS AMERICA, ET AL

BEVERLY ANN FULLER

October 1, 2014

MERRILL CORPORATION
LegaLink, Inc.
4144 North Central Expressway
Suite 850
Dallas, TX 75204
Phone: 214.720.4567
Fax: 214.720.4503

Exhibit G-76

an all around nice guy, would do anything for you. I remember one time -- or the last time that I wanted flooring for my home, and I told him I was intimidated to go to a flooring store and buy the product. And he says, well, I'll go with you. And he actually measured my house and he went with me to buy the product for the house. At our church, he was a trustee, meaning that anything that needed to be fixed, locks, air conditioning, he knew how to do it. But he was all around a nice, super person. And we really miss him.

Q. Thank you for that.

Let me ask you a little bit about the crash now. Now when you were answering some questions by Mr. Kern, you mentioned that one of the first things you did after the vehicle came to a stop was you looked around to make sure everybody was okay, and everybody appeared to be okay. Is that right?

A. Yes.

Q. So you looked at your sister. Right?

A. Yes.

Q. And you looked at Ms. Smith?

A. Yes.

Q. And she appeared to be okay?

A. Yes.

Q. You looked at Walter, and he was okay after

the impact?

A. Yes.

Q. And you also looked at Mr. Sims and he was okay as well?

A. Yes.

Q. He was certainly awake?

A. Yes.

Q. And that's after the initial collision?

A. Yes.

Q. And you're sure about that. Right?

A. I'm sure about that, yes.

MR. McLEAN: You know, I have nothing further.

MR. MATTHEWS: I have no questions.

MR. KERN: Nothing further.

THE VIDEOGRAPHER: This concludes the deposition of Beverly Fuller, volume 1. The number of tapes used was one. The original videotape will be retained by Merrill Corporation. Going off the record, the time is 11:49 a.m.

In The Matter Of:

BRUCE SMITH, ET AL v.
KIA MOTORS AMERICA, ET AL

BEVERLY FULLER
March 18, 2014

MERRILL CORPORATION
LegaLink, Inc.
4144 North Central Expressway
Suite 850
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A. I don't recall.

Q. And when you say you don't recall, you just don't recall one way or the other whether airbags had deployed?

A. That's true, yes.

Q. All right. And in terms of the rear seat occupants, it sounds as if you told me that you do not recall any specific words that were spoken or you did not hear them speak any specific words; rather, you heard the yelling and the screaming?

A. That's true, yes.

Q. And do you know who was doing the yelling and the screaming, in terms of do you know if all three occupants were still conscious, or do you know exactly who was doing the yelling or screaming?

A. I recall that, you know, all three occupants, they were conscious. You know, I recall that. And I recall that screaming was coming from all the occupants in the back seat.

Q. And you say you recall that. Is that because that's what it sounded like to you, or did you actually make eye contact with all three rear seat occupants at a time when you also saw them orally screaming or yelling, or you just believe that's what occurred?

A. From the outside, you know, looking in, I

In The Matter Of:

BRUCE SMITH, ET AL v.
KIA MOTORS AMERICA, ET AL

ALONDA HARPER
March 18, 2014

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Q. And is there any way to say how long this all took? Was this a minute or two minutes or seconds or any way to describe how long it took?

A. There ain't no way to describe it. The next thing I heard was the popping sounds, knew it was too late.

Q. And what popping sounds were you --

A. The car blowed up, exploded.

Q. And this is when you were outside the car?

A. Yes.

Q. While you were inside the car and the fire was all around you, was there black smoke starting to come inside the car or was that outside the car?

A. I can't recall.

Q. And do you know if Ms. Smith or Mr. Sims were able to undo their seat belts at all?

A. No. They were trying.

Q. And you say they were trying. Were you actually watching them try --

A. Yes.

Q. -- or you --

A. Because I was trying to get mine's too. Mine wouldn't budge, my -- it took me a while to get mine's unbuckled.

Q. All right. And how many times did you have to

In The Matter Of:

HENRY LEE SIMS, JR., ET AL. v.
KIA MOTORS OF AMERICA, ET AL.

JERRY G. WALLINGFORD, P.E.
April 8, 2015

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relative to litigation that we were involved in or I should say design and manufacture, and my engineering experience and engineering knowledge.

Q. Do you have in your file any testing that demonstrates that?

A. No, not in my file. I'm sure we've done considerable amount of testing over the years of different types of shields on different vehicles but --

Q. I only want to know about what you're using in this case, i.e., what's in your file or your report?

A. Not specifically any particular test or test report but just a general knowledge of multiple tests that we have performed and evaluated with pendulum impact devices.

Q. You haven't done any pendulum testing for this case, have you?

A. No, sir.

Q. You haven't produced any pendulum testing in this case, have you?

A. No, sir.

Q. Is there anything else of significance to what was observed with respect to this inspection of the Mini Cooper?

A. No, sir, I don't believe so.

Q. What, if anything, was significant with regard

it covers the underbody of the subject vehicle.

Q. So this has a plastic fuel tank shield, correct?

A. I will call it a polymer. You may like to call it plastic because we know that the high-density polyethylene material is quite tough, much tougher than simply plastic.

Q. Does it cover the front of the tank?

A. It covers the complete tank underneath. It does not wrap up and cover the front. It extends beyond the vertical intersection on the front of the tank.

Q. Well, it covers the bottom of the tank?

A. Yes, sir, and extends forward of the tank itself.

Q. But it doesn't cover the front of the tank?

A. It does not wrap up because it continues forward beyond the tank.

Q. How much -- how far forward of the tank does this polymer shield extend?

A. During the inspection that Mr. Scofield conducted on April 3rd, it was not possible to remove portions of the shield and ascertain how far forward. It so completely covers it, it's difficult to have a good visual perspective of the tank.

Q. Is there space underneath this vehicle for a

pipe flange to get up in there so that the heighth of the top of the pipe flange is above the bottom of the tank?

A. In my opinion that would not happen. My opinion the shield itself would deflect the vehicle up over the top of the inverted -- you're calling it pipe flange. I don't believe it would make contact with the fuel tank.

Q. It wouldn't lift the vehicle up if the pipe flange got in front of the shield, would it?

A. Yes, sir, it still would, but what happened typically is the shield itself would buckle and raise the vehicle to some degree. The shield would be compromised in the subject event and probably later have to be replaced, but it would be sacrificed to save the tank.

Q. Have you run a test to demonstrate that?

A. No, we have not.

Q. Have you run any tests in this case?

A. No, we have not.

Q. What is the thickness of that plastic shield?

A. I don't have that information.

Q. What is the --

A. It was not something that was recorded. We did not record thickness of shields during this supplemental

to any observations in connection with the inspection of the 2010 Honda Fit with regard to your work in this case?

A. Once again, the Honda Fit is one of those vehicles that has a very large underbody shield covering the fuel tank and complete cavity, including all the fuel lines and related components. It is a polymer shield. It appears that the tank is retained by straps in this particular vehicle, and once again, I measured the ground clearance to the bottom of the shield and Mr. Scofield, in fact, made a sketch of that vehicle. The Honda Fit is one of the vehicles I also looked at, not this particular one, but a 2008 Honda Fit.

Q. What's -- could you show me a picture or drawing or diagram of the shield you referred to as an underbody shield?

A. Certainly. First thing I'll hold up in front of the camera is this is what a Honda Fit looks like and amazingly close to the Kia vehicle, and in response to your question I'll hand you these three photographs that show underbody polymer shield protects the fuel tank.

Q. Does it cover the front of the tank?

A. It extends beyond the front of the fuel tank. It does not wrap vertically up in front of the fuel tank.

A. The lack of any substantial structural members, other than the front cross member, suspension cross member on the 2010 Kia Soul that would have afforded some degree of protection to the front of the fuel tank and the subject fuller Kia Soul on the date of the accident that would have prevented or mitigated any damage that occurred to the fuel tank. It's basically an open route from the front of the vehicle once I pass beyond the front cross member right directly into the fuel tank.

Q. Isn't it true that the exhaust pipe in front of the fuel tank is lower than the top than where the top of the pipe flange hit the front of the tank?

A. Yes, sir, but it's also flexible. It's mounted in rubber bushings. It's simply pushed out of the way, and we can see that that's done by and that did occur because of the damage to the pipe. It's not a protective device.

Q. Any -- anything else significant about your observations from the April 1st inspection of the exemplar Soul?

A. I noted that the kickup area for the parking brake housing exposed approximately 4.2 inches of the frontal area of the fuel tank as measured from the bottom. That would have been in the area where the fuel

tank was punctured, was ripped, cut by the inverted T-head of the breakaway flange. I noted and marked and documented the location point within that kickup after measuring the location of the compromise on the subject fuel tank of being 16 inches from the right edge. I've shown that in photographs. The clearance from the top of the fuel tank to the longitudinal stiffener above the fuel tank is approximately 2 1/4 inches. That means if that tank had been up 2 1/4 inches up against the bottom of the floor pan held with straps, we would not have cut this tank in this collision rather than leaving that air gap space between the two.

Q. You --

A. Let me get -- let me get to the last one and you can come back and ask me. And there's a -- there is a longitudinal stiffener, one stiffener, and it shows in the photographs in the subject vehicle on one side. If that stiffener was removed, the fuel tank could have been moved up a total distance of 3 3/4 inches and some of that space would have been taken by fuel tank insulation strips as occurs in all other vehicles when a fuel tank is mounted directly against the floor pan or the unibody.

Q. You said in your report that there was this cavity above the tank. If that had been used to move

sit here today that has a tank-to-ground clearance of over 10 inches?

A. Not by model, not by manufacturer, not by year no, I can't.

Q. Okay. That's fine. That's fine.

A. Again, most attorneys say this is not a memory game and those are not the kind of statistics that I carry in my head.

Q. Well, I'm not asking you for statistics or -- or anything else. I'm just asking you if you can identify any as you sit here today?

A. No.

Q. And you cannot?

A. Not by year, make and model.

Q. Now, have you had any other cases with Mr. McLean?

A. No, this is the first case.

Q. Have you had any other cases with the Hagens, Berman law firm?

A. No, sir.

MR. McLEAN: Hagens.

Q (BY MR. KELLY) Hagens, as in Häagen-Dazs. Have you had any other cases with Mark Stanley or his firm?

A. No. I've talked to him on one occasion.

Q. What is the subject area you've been retained

to analyze in this case?

A. As indicated on the first page, excuse me, of my report, we were retained to address the issue of determining whether the fuel system on the subject vehicle was defectively designed and/or manufactured, and if so, to identify alternatives that could have been implemented from an engineering perspective, economic perspective that would if -- if implemented prevented the subject accident from occurring.

Q. You have not identified any manufacturing defects, have you?

A. No.

Q. And the -- and the design defects are all outlined in your report?

A. Yes, sir.

Q. What else were you asked to analyze, if anything?

A. I think those are -- are directly the issues that I was asked to address. Certainly, I have a -- a concern as an automotive engineer, as a safety engineer concerning the issue that the rear seat passengers could not remove from the subject vehicle through the rear doors of the vehicle. I think you've retained an expert addressing that issue, but directly I have not analyzed that. I think that -- that is -- is a very poor event

is, the less vertical loading there is over a longitudinal distance as I ramp over an object.

Q. Can you identify any passenger car, not four-wheel drive or SUV or pickup truck four-wheel drive, a passenger car that has a polymer shield covering the bottom and sides of the tank that has an angle to the front of it of the type you're -- you're proposing should have been on the subject vehicle?

A. Right off the top of my head, no. It is something that I have proposed in response to your question because of the exposure to the front of this particular tank, no, and you may not end up with 15 degrees. It's a function of the designer fitting a shield to this vehicle and then the development engineer evaluating it.

Q. So as you sit -- whether it takes development and you have to figure it out with testing or not, you can't identify a single passenger car manufacturer who has a shield of the type you just described on their passenger car tank, can you? Yes or no?

A. With 15 degrees?

Q. Fifteen to 45, you know, developed the way you think it should be developed, with whatever angle is appropriate?

A. Sitting here today, no, I cannot identify that.

Q. Thank you.
A. But if you'll give me just a second here and we'll look at the angle of the shields in the photographs that were taken as shown in 2-D -- 2-E.
Q. I'll tell you what, you know, we can all go look at those six vehicles and see if any of them have a plastic shield with an angle to the front of it so why don't we just move on.
A. Go ahead.
Q. Do you believe this tank should have had a metal shield?
A. That's an option that's up to the manufacturer. Certainly, the metal shield offers more resistance, but it also increases the weight.
Q. You have --
A. Some of the shields that we see are not steel, they'll be a aluminum so they can be somewhat lighter.
Q. I'll get back to that in a minute. On -- in your report, the bottom of the page 15, top of page 16, you have what you call an example of a fuel tank shield?
A. Yes, sir.
Q. You do not tell us in your report what vehicle that is from, what material it is made of or its thickness, correct?
A. That's correct. I'm just demonstrating to the

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January 30, 2015

Mr. Marty McLean
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Re: Henry Sims/Kia
Our File No. 13-0530
Date of Incident: 04/28/2013

Dear Mr. McLean:

Pursuant to your request, Ponderosa Associates [hereinafter "PA"] has reconstructed a two vehicle intersection collision that occurred at approximately 1:52p.m. on April 28th, 2013. The crash occurred at the intersection of Jacksboro Highway and Hanger Cutoff Road in Ft. Worth, TX. The crash involved a 2010 Kia Soul [hereinafter "Kia"] and a 1999 Honda Odyssey [hereinafter "Honda"]. The Kia was driven by Beverly Fuller and contained occupants Alonda Harper, seated in the front passenger seat, and Henry Sims, Lillie Smith and Walter King, all seated in the back row. The Honda was driven by Kevin Davis and contained one additional occupant, Benjamin Davis, seated in the front passenger seat. Reportedly, Ms. Fuller was traveling northwest on Jacksboro Highway and Mr. Davis was traveling south on Hanger Cutoff Road. Both drivers indicated they had the green light prior to entering the intersection. After the vehicles entered the intersection, the front of the Honda impacted the passenger side of the Kia. Subsequent to the impact, the Kia was redirected to a more westerly heading, rotated counter-clockwise and contacted a light standard and overhead traffic signal pole with the left side rear corner and wheel. The pole stopped and reversed the rotation of the Kia which proceeded to impact a yield sign, separating it from its break away slip base. The crash resulted in a rupture of the Kia fuel tank and subsequent fire. As a result of the crash, the three occupants sitting in the back row of the Kia Soul sustained fatal injuries.

Purpose:

The purpose of this report is to present the findings of our analysis and reconstruction, including the vehicle dynamics, speeds, and roadway and driver factors.

Procedure:

Relative to this crash, the provided documents were reviewed and the available evidence was analyzed. We have evaluated and reconstructed the crash within a reasonable degree of engineering certainty using widely accepted accident reconstruction principles and techniques, as

well as our education, training and experience. We have reviewed the following documents that were provided by your office:

- Fort Worth Police Department Crash Report (Case ID: 13-41135)
- Tarrant County Sheriff Office Event Report (Event ID: 12-0428-102)
- Preliminary and final fatality reports for the three victims
- CrashZone CAD files containing total station survey data
  - 13-41135 (CR3).czd
  - 13-41135 (momentum).czd
  - 13-41135 (path).czd
  - 13-41135.czd
- 2010 Kia Soul Fuel Tank Removal Protocol
- 2010 Kia Soul Vehicle Inspection Protocol
- Depositions from the following parties:
  - Kevin Davis
  - Beverly Ann Fuller
  - Detective Christopher Gorrie
- Witness statements from the following parties:
  - Alonda Harper
  - Benjamin Davis
  - Beverly Fuller
  - Kevin Davis
  - Terry Gustafson
  - Tracy Crouch
- Numerous 911 recordings
- Autopsy reports for the three victims
- United States District Court, Central District of California Demand for Jury Trial
- Dash cam video from Fort Worth Police Department vehicles
- 307 Redacted digital images of the crash scene taken by the Fort Worth Police Department (4/28/2013)
- 77 PDF's of redacted images of the crash scene taken by the Fort Worth Police Department (4/28/2013)
- 435 Digital images of the subject Kia taken by H.M. El-Sabeh (11/21/2013)

In addition to the materials listed above, PA performed inspections, including photographs and detailed measurements of the crash scene on September 10th, 2013 and the Kia on September 12th, 2013. PA performed a secondary inspection of the subject KIA, including photographs and detailed measurements, on May 22nd, 2014 during a joint inspection to remove the gas tank. PA also inspected an exemplar 2010 KIA Soul. Photographs and measurements of the exemplar were obtained on November 18th, 2013. The subject Honda Odyssey has not been made available

for inspection throughout the course of this investigation.

PA has further obtained specifications for the subject vehicles through various sources including manufacturer's brochures, exemplar inspections, VIN DeCoder program, POLK VINtelligence program, AutoStats program, Vehiclemetrics Inc., and internet sources. PA also obtained satellite images of the crash site and reviewed and utilized our own photographs during the course of our analysis of the subject crash.

Figures:

PA has prepared numerous figures that are attached to this report. These figures depict important photographs, drawings, renderings and images that assist in showing our reconstruction of the crash. The figures are intended to be representative of our findings and may be supplemented for trial or if new information becomes available in the future.

Background:

In the area of the crash, Hanger Cutoff Road is oriented in the northeast/southwest directions while Jacksboro Highway (SR 199) is oriented in the northwest/southeast directions. For simplicity throughout this report, Hanger Cutoff Road is described as a north/south roadway while Jacksboro Highway is described as an east/west roadway. According to this convention, the Kia was traveling west and the Honda was traveling south leading up to the crash.

At approximately 1:52 p.m. on April 28th, 2013, Beverly Fuller [hereinafter "Fuller"] was driving west on Jacksboro Highway, near the intersection with Hanger Cutoff Road in Ft. Worth, TX. She was driving a 2010 Kia Soul containing four additional occupants. Alonda Harper was seated in the front passenger seat while Henry Sims, Lillie Smith and Walter King were all seated in the back row. At the same time, Kevin Davis [hereinafter "Davis"] was traveling south on Hanger Cutoff Road, driving a 1999 Honda Odyssey containing one additional occupant in the front passenger seat, Benjamin Davis.

According to the crash report, both drivers believed they were entering the intersection on a green light. Impact occurred as the front of the Honda impacted the right side of the Kia with an area of impact in lane #1 for westbound travel on Jacksboro Highway. As a result of the impact, the Kia was redirected, began rotating clockwise and proceeded up onto a raised median which borders the south travel lanes of Hanger Cutoff Road to the west. There exists a large diameter octagonal pole at the south east corner of the raised median island which supports overhead traffic signals and overhead lighting [hereinafter "octagonal pole"] The left rear corner of the Kia the impacted the octagonal pole, reversing the rotation as it traveled west across the median. Subsequent to the octagonal pole impact, the front of the Kia impacted a yield sign located at the northwest end of the median, detaching the sign from its breakaway slip base and projecting it to the west. The Kia continued rotating counter-clockwise, departed the median, traveled across a U-turn lane and exited the roadway at the southwest corner of the intersection. The Kia came to rest adjacent to the road surface, facing southeast. After breaking the yield sign from its base, the underside of the Kia traveled over the fixed base of the sign, causing the fuel tank to rupture.

As a result of the rupture, the Kia caught fire. The fire entered the occupant compartment before the back passengers of the Kia were able to exit, resulting in fatal injuries.

After impacting the Kia, the Honda came to rest a short distance away from the impact location in the area where the right lane of south bound traffic from Hanger Cutoff Road intersects with the left through lane of westbound Jacksboro Highway. The Honda was facing southwest with the front of the vehicle directly adjacent to the northeast corner of the median.

Motor Vehicles:

2010 KIA Soul: The 2010 Kia Soul involved in the crash was a four door sport utility vehicle with a Vehicle Identification Number of KNDJT2A21A7702490. The VIN was provided on the police report and was not able to be read directly from the vehicle. The provided VIN was verified using VIN decoding software to confirm the year, make and model. Vehicle specifications indicate that the overall length and wheelbase of the vehicle were approximately 162 and 100 inches, respectively. The overall width was approximately 70 inches. The total weight of the vehicle at the time of the crash, making considerations for cargo and occupants, is estimated at 3,600 pounds. The vehicle was equipped with four wheel disc brakes with ABS as well as front, seat-mounted side and full length side curtain airbags. The recommended tire size, according to vehicle specifications, was P205/55R16.

PA inspected the Kia on September 12th, 2013 and again on May 22nd, 2014 in Dallas, TX. The vehicle was severely damaged by the fire. The majority of the vehicle save the metal components and structure were consumed. The following is a brief description of some of the more notable damage.

The front sub bumper was exposed and exhibited a dent to the left of the license plate mounts as well as a dent in the hood directly above, resulting from the break-away sign contact. A dent in the windshield header/roof area is likely also associated with the yield sign impact. The left outer door panels were relatively unremarkable for crash damage. Both doors were open and the left rear door exhibited residual deformation at the window frame. Photographs of the vehicle at the scene show this frame was bent down significantly, likely in an effort to pry the door open. Evidence of impact with the octagonal pole was seen at the left rear corner and resulted in inboard deformation at the C-pillar area spanning the entire height of the vehicle. The left rear wheel, hub and suspension were rotated and displaced rearward. The right rear door was no longer attached to the vehicle but present at the inspection. Further, a separate bumper beam was found with the vehicle and was determined to be the front bumper structure of the Honda. The right side of the vehicle exhibited contact damage from the impact with the Honda. All four tires were consumed by the fire. The fuel tank exhibited an approximately four inch wide hole that spanned the tank lengthwise. The trailing arm suspension was displaced rearward at the left rear corner consistent with the displacement of the rear wheel. The left arm of the suspension was broken at the pivot location. The transverse torsion beam and torsion rod exhibited buckling and possible interaction with the slip base. Mounting brackets for the gas tank were bent. The forward portions of the underside of the vehicle were nearly unremarkable in terms of crash or direct contact damage. Figures 1 – 4 depict the Kia at the time of inspection.

The Kia had been modified from its position at rest after the crash. The right rear door had been removed, most likely in order to remove the occupants. The right front door also displayed evidence of movement. In order to assess damage related to the Honda impact, the damage was recreated using the police scene photography and photogrammetry techniques. Figures 5 - 23 depict the condition of the Kia after the crash and crush measurements related to the Honda impact.

1999 Honda Odyssey: The 1999 Honda Odyssey involved in the crash was a four-door minivan and was not available for inspection during the course of this investigation. The Vehicle Identification Number of 2HKRL1866XH527809 was provided on the police report and checked using VIN decoding software to confirm the year, make and model. Vehicle specifications indicate that the overall length and wheelbase of the vehicle were approximately 201 and 118 inches, respectively. The overall width was approximately 76 inches. The total weight of the vehicle at the time of the crash, making considerations for cargo and occupants, is estimated at 4,678 pounds. The vehicle was equipped with front wheel disc and rear wheel drum brakes with ABS as well as dual front air bags which deployed as a result of the crash.

Based on the photographs taken at the scene of the crash, the damage to the Honda spans the front portion of the vehicle. Crush damage is somewhat concentrated on the left side of the vehicle but notable across the entire front span. The front bumper beam separated from the Honda during the impact and became entrapped in the right front door of the Kia. The remainder of the vehicle is unremarkable in terms of the damage related to the crash.

In order to quantify the frontal damage to the Honda, the provided police photography was utilized in a photogrammetric analysis. Adjustments to the measured crush dimensions were made to account for the separated front bumper beam and bumper foam. Figures 24-25 depict the post-crash condition of the Honda. Figure 26 depicts the photogrammetric analysis of the Honda and resulting crush measurements.

Scene:

The subject crash occurred at the intersection of Jacksboro Highway and Hanger Cutoff Road in Ft. Worth, TX. PA inspected the scene on September 10th, 2013. Photography, GPS, and police markings confirmed this location at the time of our inspection. The inspection consisted of photographs of the area, detailed measurements using a total station theodolite to capture 3D geometry of the roadway as well as a visual comparison to provided police photography. Scene data was supplemented with police survey measurements and photogrammetric analysis.

The eastbound and westbound lanes of Jacksboro Highway are separated by a wide grassy median in the area of Hanger Cutoff Road. The intersection design at Hanger Cutoff Road incorporates U-turn lanes for eastbound and westbound traffic on Jacksboro Highway. The U-turn lanes provide a median crossover at Hanger Cutoff Road. The U-turn lanes are parallel to, and outboard of, Hanger Cutoff Road where it crosses Jacksboro Highway.

North of the intersection with Jacksboro Highway, Hanger Cutoff Road is a two lane road with northbound and southbound travel lanes delineated by a double yellow road line. The southbound travel lane splits into two lanes with both lanes designated for through traffic and the right lane with the option to turn right onto Jacksboro Highway. North of Jacksboro Highway the roadway is paved with asphalt and south of westbound Jacksboro highway the roadway becomes a median crossing between westbound and eastbound lanes and is paved with concrete. In the median crossing, Hanger Cutoff Road has four lanes of travel with two lanes of travel each for northbound and southbound travel. For northbound traffic, the right lane is a through lane and the left lane is designated for left turns onto westbound Jacksboro Highway. The north and southbound lanes of travel are delineated by a double yellow centerline. In this area of Hanger Cutoff Road, southbound traffic is descending a minor grade of approximately 2.0% and the posted speed limit, north of the intersection is 40 mph. .

For westbound traveling vehicles immediately prior to the intersection with Hanger Cutoff Road, Jacksboro Highway has four lanes of travel with three lanes designated for through travel. All three lanes of through travel are delineated with white skip lines. A deceleration and turn lane exists to the left of lane 1 for left turning vehicles approaching the U-turn lane. The dedicated turn lane is for making a U-turn from westbound to eastbound Jacksboro Highway The designated U-turn travel lane runs parallel to, and is located to the east, of Hanger Cutoff Road and is separated from northbound Hanger Cutoff Road by a raised, paved median. Beyond the intersection, westbound Jacksboro Road has 3 lanes of travel. The design for eastbound traffic mirrors the westbound direction with a U-turn lane to the west of Hanger Cutoff Road separated by a raised, paved median. Jacksboro Highway is paved with concrete and westbound travel is climbing a minor grade of approximately 2.2%. The posted speed limit on Jacksboro Highway in this area is 40 mph..

The intersection of Hanger Cutoff Road and Jacksboro Highway is controlled by overhead traffic signals. On the raised median which separates southbound Hanger Cutoff Road and the eastbound to westbound U-turn lane for Jacksboro Highway, there is a pole which supports the overhead traffic signals and an overhead light which has been previously identified as the octagonal pole. To the west of the pole, there is a yield sign. At the time of the crash the yield sign was mounted on a breakaway slip base. At the time of our inspection, the yield sign had been reinstalled on the same breakaway slip base and still exhibited marks and damage from the crash. Figures 27 – 28 depict the intersection. Figures 29 – 39 depict the scene survey, crash related evidence and provided police measurements. Figures 40 – 42 depict the yield sign and slip base installation.

Crash related evidence that was visible in photographs taken by investigating officers after the crash, was analyzed and compared to measurements made at the scene. Police survey measurements and photogrammetric techniques were utilized to supplement scene evidence that was visible in provided photography but not able to be directly measured at the time of inspections.

Yield Sign: The yield sign that was hit by the Kia was mounted on a breakaway slip base. Breakaway devices are used in areas where it is anticipated that vehicles may strike them and are

designed to yield or break upon impact. The subject sign was mounted on a 3 inch diameter galvanized steel tube connected to a triangular base plate. A separate triangular base plate was fixed in a pier foundation. The two base plates were joined with bolts and a slip plate. The connection between the fixed bottom base plate and the base plate connected to the sign post is intended to be a slip plane. When the post is impacted, the post fails by design at the slip plane. Figures 42 & 62 depict the slip base. The elevation of the top surface of the fixed base plate above ground was 3 1/4 inches.

Although a detailed review of roadside fixture design is beyond the scope of this report, a basic review of the available recommendations or standards for breakaway posts was performed. One such standard is by the American Association of State Highway and Transportation Officials (AASHTO). The document titled *AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals* states that the maximum height of the fixed base above grade should be 4 inches. This dimension is restricted to allow for ground clearance on vehicles which are anticipated to pass over the fixed base. Figure 43 is from the AASHTO standard and indicates that the 4 inch measurement must account for the surrounding terrain. The elevation of the top surface of the fixed base plate above ground was 3 1/4 inches, falling below the 4 inch maximum. Accounting for the curb drop-off which occurs approximately 57 inches from the post fixture it was found that the top of the slip base plate still falls within a 4 inch clearance window.

Accident Reconstruction:

The subject crash was reconstructed using standard reconstruction methods which are commonly used and widely accepted. The reconstruction is based upon physical evidence collected during the vehicle and scene inspections as well as through photographs. Notable events related to the reconstruction include the speeds and positions of the Kia and Honda at initial impact, the speeds and positions of the Kia at impact with the octagonal pole and yield sign and the positions of both vehicles at rest. Also analyzed were the dimensions and geometry of the yield sign slip base plate relative to the Kia and the post-crash location of the Kia gas tank. Detailed measurements of the subject Kia, exemplar Kia and scene were obtained during the course of our investigation and were used to evaluate the damage to the fuel tank. Analysis of the fuel tank rupture was limited to a layout of the crash dynamics during the interaction of the tank with the slip-base. An analysis of the Kia fuel systems, fuel tanks and post-crash fire are beyond the scope of this report.

Accident Dynamics and Speeds: The subject Kia was traveling westbound on Jacksboro Highway when it entered the intersection with Hanger Cutoff Road. At the same time, the southbound Honda entered the intersection and impacted the right side of the Kia. Impact occurred in the number 1 lane of Jacksboro Highway. Initial contact was between the front bumper of the Honda and the right front corner of the Kia. The impact likely involved the right fender and right front wheel of the Kia. The forward momentum of the Kia continued as the bumper of the Honda engaged the right front door, became entrapped and was torn from the Honda. The impact collision forces caused the Honda to rotate clockwise approximately 85 degrees, ultimately coming to rest near the southeast corner of the raised concrete median. The

Kia also entered a clockwise yaw after impact. The Kia post impact dynamics are described below. Figures 44 – 94 depict the collision between the Honda and Kia.

The analyses of speeds, velocity changes (Delta-V) and principle directions of forces (PDOF) were performed using multiple approaches producing a range of answers. Table 1 summarizes the analysis results for the collision between the Honda and the Kia. The values in the table were determined to be the most likely result based upon the range of results. The full ranges of results are shown in brackets. The results for speeds at impact do not account for any pre impact acceleration or braking by either vehicle. There was no physical evidence on the roadway prior to the area of impact, such as skid marks, to establish pre impact speeds.

Table 1 Honda vs. Kia Collision Results

RESULT	HONDA	KIA
Initial Speed at the moment of impact	22 mph [20 – 26]	44 mph [36 – 44]
Speed at separation	14 mph [10 – 15]	35 mph [33 – 39]
Delta-V	15 mph [13 – 15]	18 mph [16 – 20]
PDOF	-30 degrees [-25 - -40]	60 degrees [51 – 68]

After separation from the Honda, the Kia entered a clockwise yaw as the vehicle traveled driver's side leading toward the raised concrete median. The Kia left front, left rear and right rear tires rolled and side slipped over the curb and onto the median as the left rear corner of the Kia rotated into the octagonal pole. Impact with the octagonal pole involved the left quarterpanel of the Kia along the full height of the C-pillar region of the car. At the same time the left rear wheel impacted the pier foundation and base plate area of the pole causing damage to the wheel and rearward displacement and rotation of the wheel. Figures 56-59 depict the pole and pole base showing impact damage.

Impact with the octagonal pole stopped the clockwise rotation of the Kia and induced a counterclockwise rotation. As the vehicle separated from the pole it continued in a westerly direction across the median with rotation causing the remaining right front wheel to climb the curb and enter the raised median. The front of the vehicle then impacted the yield sign, causing the post to break at the slip base and be projected forward (west). Damage to the front of the Kia indicates that the bumper, the leading edge of the hood and windshield header area of the roof made contact with the yield sign post. Marks on the yield sign post are consistent with an impact at bumper height of the Kia. Tire marks on the raised median in this area show that the left rear tire was inflated when it initially climbed the curb prior to impact with the octagonal pole foundation. After coming off the pole foundation, the left rear tire left a continuous mark leading into and around the yield sign slip base indicating that this tire was in contact with the ground over this distance.

After impacting the yield sign post and knocking it out of the way, the Kia continued in a westerly direction across the slip base foundation. The fuel tank contacted the slip base plate, the top surface of which projected 3 1/4 inches above the ground. Engagement with the slip base plate caused the fuel tank to rupture. As the Kia continued to move across the slip base, the torsion beam of the trailing arm suspension impacted the base plate followed by the left rear tire

which was deflected around the slip base. Damage to the fuel tank matches the general shape of the slip base and exhibits a force direction from front to rear, angled toward the left rear wheel. This damage is consistent with having occurred as the Kia passed over the base plate with the front end of the vehicle oriented forward. Tire marks in the area of the slip base and across the U-turn lane indicate that the right rear wheel was also in contact with the median surface leading into the yield sign slip base and on the surface of the U-turn lane. Scrapes on the median in the area of the yield sign indicate that the Kia was dragging the Honda bumper across the median.

After separation from the slip base the Kia continued to rotate in a counterclockwise direction as it crossed the U-turn lane, coming to rest on the off road area to the west of the U-turn lane. The Kia came to rest adjacent to the road surface, facing southeast.

The analyses of speeds, velocity changes (Delta-V) and principle directions of forces (PDOF) were performed using multiple approaches producing a range of answers. Table 2 summarizes the analyses results for the collision between the Kia and the octagonal post. The table also shows speeds as the Kia passed over the slip base. The values in the table were determined to be the most likely result based upon the range of results for a particular item. The full ranges of results are shown in brackets.

Table 2 Kia vs Pole impacts

RESULT	KIA
Initial speed at the moment of pole impact	29 mph [23 - 35]
Speed at pole separation	25 mph [23 - 27]
Delta-V	5 mph [4 - 10]
PDOF	-55 degrees [-54 - -73]
Speed at Yield Sign	23 mph [21 – 26]

The tire marks on the raised median

Gas Tank Position over Slip Base: The severity of the rupture of the fuel tank indicates that it made direct and significant contact with the top of the slip base. Figures 95 – 112 show the alignment of the Kia and fuel tank relative to the slip base plate. A dimensional analysis was performed to determine the necessary conditions for such contact to occur. Kia dimensions were based upon 3D scanning of the subject Kia and an exemplar Kia, detailed vehicle specification research and test data regarding suspension and tire characteristics. The maximum suspension jounce to stop dimension for the Kia wheels was determined to be 4.8 inches and 1.3 inches for the front and rear wheels, respectively. Considerations were made in the analysis for static suspension sag and dynamic suspension compression while loaded with five occupants. The total dynamic compression of the suspension and tires was determined using a simulation model and a drop test whereby a fully loaded Kia was dropped from a height of 1.0 feet. The simulation model was used to quantify the total deflection due to full jounce compression of the suspension, compression of suspension stops and deflection of the tires resulting from the drop. The following configurations were analyzed:

1. Static loaded[1] Kia. Positioned on a flat surface over the 3 ½ inch slip base. [Figures 99-100]
2. Static loaded Kia. Positioned on the scene geometry over the 3 ½ inch slip base with rear wheels on the raised median and front wheels on the U-turn lane. [Figures 101-102]
3. Dynamic loaded Kia with front suspension at full jounce. Positioned on the scene geometry over the 3 ½ inch slip base with rear wheels on the raised median and front wheels on the U-turn lane. Front end lowered to full compression of suspension. [Figures 103-104]
4. Dynamic loaded Kia with front and rear suspension at full jounce. Positioned on the scene geometry over the 3 ½ inch slip base with rear wheels on the raised median and front wheels on the U-turn lane. [Figures 105-106]
5. Dynamic loaded Kia with damaged rear wheels. Kia positioned over 3 ½ inch slip base with left rear wheel rotated rearward and compressed into the body panel. Right rear wheel positioned separate from the axle and constrained between the ground surface and the inner surface of the wheel well. [Figures 107-108]

When considering the above configurations, it was found that the Kia fuel tank, in the position found at our vehicle inspection, did not make contact with the slip base for configurations 1 through 4. Configuration 5 was a worst case scenario intended to position the fuel tank as close as reasonably possible to the slip base while still accounting for physical evidence. It was found that even in the worst case configuration, the bottom of the fuel tank would not have overlapped with the top of the slip base plate. Therefore, the tank would not have ruptured in this conservative scenario. Based upon this analysis, it can be concluded that the fuel tank in the subject Kia moved or shifted downward prior to passing over the slip base plate. In order for the rupture to occur, a combination of vehicle dynamics and a displaced position of the tank were required.

The large rupture in the tank indicates that significant forces were acting on the tank during the impact, displacing the fuel tank rearward and upward. A tank that had displaced downward prior to impact with the slip base would then be displaced upward as a result of the impact. When compared to the undamaged tank position of an exemplar Kia Soul, the damaged tank position was found to be at approximately the same vertical height. However, the subject damaged tank was rotated such that the rear portions of the tank were higher than the front portions.

As previously noted, configuration 5 was intended to approximate a worst case scenario that matches physical evidence constraints at the scene and on the vehicle. In configuration 5, the vehicle was placed with the left rear tire and wheel rotated rearward, displaced upward and modeled with the tire flat. The right rear wheel was modeled as broken at the axle and displaced upward into the wheel well area until trapped between the ground and the top of the wheel well.

The positioning of the left rear wheel was based upon the damage that occurred to the tire, wheel and suspension at impact with the octagonal pole and foundation. Impact with the foundation of the octagonal pole likely caused a failure of the left suspension trailing arm, allowing the wheel

[1] Loaded is the computed total weight of the subject Kia at the time of the crash.

to rotate toward the rear. This position of the left rear wheel after impact with the octagonal pole is supported by the location of tire marks on the raised median. The alignment of marks that were deposited on the raised median by the left rear tire, relative to the tire marks from the other three tires, indicated that the left rear wheel must have been rotated rearward. The tire was modeled as flat due to the broken pieces of aluminum wheel that were found on the median which indicated that this wheel was no longer capable of remaining pressurized.

The positioning of the right rear wheel was based upon a worst case interpretation of the scene and vehicle evidence. At rest, the right rear wheel was broken and separated from the rear axle. Based upon the tire marks from the right rear wheel on the median and across the U-turn lane, it is likely that this wheel broke late in the event after passing over the median. However, for the purpose of the configuration 5 layout, this wheel was assumed to have broken at the moment the vehicle was passing over the slip base. The wheel was modeled as detached from the axle and displaced upwards into the wheel well so that the wheel and tire were trapped between the ground and the wheel well.

Conclusions/Opinions:

Based upon my training, education and experience, and my examination and analysis of subject crash, I have reached the following conclusions:

- The speed of the Kia when impacted by the Honda was approximately 44 mph.
- The speed of the Honda when it impacted the Kia was approximately 22 mph.
- The speed range, Delta-V and PDOF of each vehicle during the Honda vs. Kia collision are given in Table 1.
- The speed of the Kia when it impacted the octagonal pole was approximately 29 mph.
- The speed range, Delta-V and PDOF of the Kia collision with the octagonal pole and the yield sign post are given in Table 2.
- The post impact movements of both vehicles are as described in the body of this report and depicted in the attached figures.
- The Kia impacted a yield sign that was mounted on a breakaway slip base. The breakaway post performed as designed when impacted.
- The height of the fixed base to the breakaway sign post was in compliance with *AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals*
- The Kia fuel tank was ruptured when it impacted the yield sign base plate. The contact started at the forward edge of the tank and ripped through the bottom of the tank toward the rear, passing across the full width of the bottom of the tank.
- The fuel tank likely moved downwards prior to impact with the slip base plate. Dynamic movement, including movement associated with broken rear wheels is not sufficient to cause the bottom surface of the tank to overlap the base plate.

The opinions and recommendations expressed in this report are based on the information available at the time of this writing. Should additional information become available in the future, the opinions and recommendations expressed in this report are subject to change.

Please contact me if you have any additional questions or concerns regarding this matter.

Sincerely,
PONDEROSA ASSOCIATES, LTD.

Michael J. McCort, M.S., P.E.

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Transcript of **JAE HWA PARK, VOLUME 2**

Date: December 15, 2014

Case: SIMS, JR., ET AL v. KIA MOTORS AMERICA, INC., ET AL

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Exhibit L-106

question one more time? 09:52:41

Q. Sure. I understand that Kia defines the Soul as a compact utility vehicle, correct? 09:52:43 09:52:50

A. Yes, correct. 09:52:53

Q. Is that a designation that is industrywide or solely followed by Kia? 09:53:03 09:53:08

LEAD INTERPRETER: Can you rephrase your question, Counsel? 09:53:12 09:53:14

MR. McLEAN: Sure. 09:53:15

Q. Do other automakers build compact utility vehicles? 09:53:15 09:53:20

A. Yeah, there is similar types of car. 09:53:20

Q. Okay. Are any of those vehicles you mentioned earlier, the Volkswagen Tiguan, the Golf, the Passat, the Up, or the Chrysler 300C, compact utility vehicles? 09:53:34 09:53:37 09:53:45 09:53:55

A. I mean, I could say it's kind of in the middle classification in between Golf and Tiguan. 09:54:00 09:54:13

Q. Okay. 09:54:13

A. So the Tiguan is SUV, a Golf is a passenger car, so the combination of those two types are -- become CU -- CVU. 09:54:28 09:54:34 09:54:37

Q. Let me ask you, has Kia ever used metal fuel pump service covers on any of its other vehicles? 09:54:39 09:54:49

A. Yeah, have been used. 09:54:53

Q. All right. Which ones? 09:55:02

A. It was used in the area of the large-sized car. 09:55:04 09:55:12

Q. What about any passenger cars? 09:55:12

A. Among the passenger car, large-sized passenger car, it has been used, that material. 09:55:14 09:55:28

Q. All right. Which ones, which cars? 09:55:30

A. Maybe GHK9 or T7, I cannot recall exactly, but we use a lot in the large size of the passenger car. 09:55:32 09:56:01 09:56:04

Q. All right. So you're aware that before the Kia Soul's production, Kia had used metal fuel pump service hole covers, correct? 09:56:05 09:56:07 09:56:14

A. I mean, having using plastic or the metal in many types of the car as the same usage. 09:56:15 09:56:37

Q. Okay. But my question was different. Before the Soul was built, Kia had built certain passenger vehicle models using a metal fuel pump service cover, correct? 09:56:42 09:56:45 09:56:49 09:56:54

A. Yeah, have been used, yes, they have been using plastic cover. 09:56:55 09:57:16

Q. All right. And you provided a few -- a few reasons as to why Kia believed that a plastic cover would be suitable for the fuel pump service hole in the Kia Soul, including what your competitors were 09:57:17 09:57:19 09:57:24 09:57:27

UNITED STATES DISTRICT COURT

FOR THE NORTHERN DISTRICT OF TEXAS

FORT WORTH DIVISION

HENRY LEE SIMS, JR., et al.,	)	
	)	Case No. 4:14-CV-00045-A
Plaintiffs,	)	
	)	
vs.	)	
	)	
KIA MOTORS AMERICA, INC., et al.,	)	
	)	
Defendants.	)	

* * * CONFIDENTIAL * * *

DEPOSITION OF MICHAEL E. KLIMA, P.E.

Tuesday, April 21, 2015

Phoenix, Arizona

Reported by: Gary W. Hill, RMR, CRR
Certificate No. 50812

rear seat?

A My understanding is that there was no buckle or latch plate recovered for the center rear seat position.

Q Okay. Now, Ms. Harper describes that before she exited the vehicle, she observed both Ms. Smith and Mr. Sims, the right rear and left rear passengers, attempting to unbuckle their seat belts as well?

A That's her observation, yes, sir.

Q And that would tell you that these individuals were not -- they didn't die from the collision, correct?

MR. KELLY: Object to the form of the question.

THE WITNESS: This is her statement. So I have -- the physical evidence is that Mr. Sims' belt, latch plate, and buckle assembly were still together as a unit. So the right rear seat position of Ms. Smith was that there was a separation; the latch plate was not in the buckle assembly for the right rear seat position.

So physical evidencewise, we have an unbuckled right rear, an unknown center rear, and a buckled left rear. That's what the facts are.

Q Okay.

A Correct.

Q You have to toggle it from the locked to the unlocked position in order to unlock the door?

A Correct. And, of course, that's assuming that the child safety lock is not engaged.

Q Sure.

A Even if it was override, which this system is not, if you turn on the child safety lock, that overrides the ability to override the lock from the interior, you know, releasing a lock from the interior handle if it was designed that way.

Q So for purposes of this crash, the door was functioning properly, and the child safety locks were engaged. The people on the inside of the car couldn't open the doors, but the people on the outside of the car could have?

A Correct, if there was no damage that prevented it from opening.

Q Now, you've reviewed the physical damage to all of the various doors of the subject Kia Soul, right?

A In my inspections, yes, sir.

Q And your inspections, I believe your opinions are that the doors of the, rear doors and the right front door were inoperable as a result of the

collision?

A Yes.

Q And the left front driver's side door was operable?

A Correct.

Q And regardless of whether the child safety locks were on or off, there was no way for the individuals in the back seat to open the rear doors, correct?

A Well, it appears that there was damage causing them to be jammed from direct contact or direct collision damage, yes, sir.

Q So essentially, it's not consequential in terms of your opinions that the child safety locks may have been engaged?

MR. KELLY: Object to the form of the question.

THE WITNESS: Well, from a damage -- that doesn't affect the opinion of the damage to the doors from direct contact, that's true.

BY MR. MC LEAN:

Q So for purposes of this crash, it made no difference whether or not the child safety locks were engaged at the time of the collision?

MR. KELLY: Object to the form of the

A Well, let me back up just for clarity. I know, as we talked about earlier, his seat belt was still found latched. So was that an effect of the collision? That's an unknown.

Q So the only thing you know is that his seat belt was still latched?

A Correct.

Q And that doesn't tell you in any way what kind of injuries he suffered during the collision?

A Just that that is a fact that stands, that he was unable to unlatch his seat belt assembly.

Q And that could be for a variety of reasons, correct?

A Absolutely.

Q Now, in terms of the requirements of FMVSS 214, is there any requirement in that standard governing whether the doors will open following a crash?

A I would want to review it with that thought in mind. I don't recall any language like that in 214.

Q Just so -- because this is my one day that I get to talk to you about this. As we sit here today, you're not aware of any requirement in any of the FMVSS standards that you've reviewed governing when doors will open following a crash?

PA-JICIV 17.240, Pa. SSJI (Civ), § 17.240 (2013)

Pennsylvania Suggested Standard Civil Jury Instructions
Fourth Edition with May 2014 Supplement
Volume II
Chapter XVII - Intentional Torts
Date of Last Revision - February 2009

17.240 (Civ) [a1] FRAUD

(1) A person who makes a fraudulent misrepresentation of material fact to another person is responsible for all injuries resulting from that other person's reliance on the fraudulent misrepresentation. In order for the plaintiff to recover against the defendant, you must find (a) that the defendant made a misrepresentation to the plaintiff, (b) that the misrepresentation made by the defendant to the plaintiff was fraudulent, (c) that the misrepresentation was of a material fact, (d) that the defendant intended that the plaintiff rely on the defendant's misrepresentation, (e) that the plaintiff relied on the defendant's misrepresentation, and (f) that the plaintiff's reliance on the defendant's misrepresentation was a factual cause of the harm suffered by the plaintiff.

(2) A misrepresentation is any assertion, by words or conduct, that is not in accordance with the facts. An assertion by words may, for example, arise from statements contained in the labeling or in the advertising of a product. An assertion by conduct may, for example, arise from a usage of trade or a course of dealing. A usage of trade is any practice or method of dealing that has been regularly observed among persons in a particular place, trade, or vocation. Because a usage of trade is so regularly observed, a buyer may justifiably expect it to be observed by the seller in any sale. A course of dealing arises from the previous conduct between the buyer and seller. The course of dealing establishes a common basis for understanding each other's expressions or conduct. An assertion by conduct may also arise when the seller knows the particular purpose for which the user or consumer requires the goods or product, and the seller furnishes the goods or product for that particular purpose.

(3) A misrepresentation is fraudulent when the person making the misrepresentation (a) knows that it is untrue, or (b) does not believe it is true or is indifferent as to whether it is true, or (c) by reason of special circumstance has a duty to know whether it is true.

(4) A fact is material if it is one that would be of importance to a reasonable person in determining a choice of action. A material fact need not be the sole or even a substantial factor in inducing or influencing a reasonable person's decision. A fact is also material if the maker of the misrepresentation knows that the person to whom it is made is likely to regard it as important even though a reasonable person would not regard it as important.

"Reliance" means a person would not have acted (or would not have failed to act) as he or she did unless he or she considered the misrepresentation to be true.

SUBCOMMITTEE NOTE

(1) The instruction encompasses the common-law tort of fraud or deceit and is based upon the Restatement of Torts sections 525 to 552 (1965). The elements of an action in trespass for fraud were set out by the Superior Court in *Shane v. Hoffmann*, 324 A.2d 532 (Pa.Super. 1974); see Prosser, *Handbook of the Law of Torts* 685-86 (4th ed. 1974). The present instruction requires that the fact misrepresentation be material, although the court in *Shane*, above, states that if the misrepresentation is knowingly

made, materiality is not a requisite, although reliance is still required. Because the plaintiff must have justifiably relied on the misrepresentation and because reliance is not justified unless the fact misrepresented is material, the instruction requires that the fact misrepresented be material, Restatement of Torts § 538 (1965).

The instruction is sufficient also for an action for fraud in assumpsit. *Myers v. Rubin*, 160 A.2d 559 (Pa. 1960); *Nissenbaum v. Farley*, 110 A.2d 230 (Pa. 1955); *Adelman v. CGS Scientific Corp.*, 332 F.Supp. 137 (E.D. Pa. 1971). Liability for negligent misrepresentation, as distinguished from a misrepresentation that is intentional or in reckless ignorance of the truth, is imposed only where a duty exists to give correct information. *Renn v. Provident Trust Co.*, 196 A. 8 (Pa. 1938). When the court decides as a matter of law that such duty exists, the above instruction may be given where negligent misrepresentation is alleged by substituting the word "negligent" for the word "fraudulent" and replacing item (3), which defines "fraudulent," with Instruction 13.10, Negligence.

Contributory negligence is no defense to a fraudulent misrepresentation. *Soltan v. Shahboz*, 119 A.2d 242 (Pa. 1956); Restatement (Second) of Torts § 545A (Tent. Draft No. 10, 1964).

(2) The definition of misrepresentation is adopted from Restatement of Torts § 525, comment b (1938); Restatement of Contracts § 470(1) (1932); and Restatement of Restitution § 8, comment b (1936). Because a misrepresentation may be made by conduct, the instruction incorporates language defining implied warranty of fitness, 13 Pa.C.S. § 2315, and course of dealing, 13 Pa.C.S. § 1205. There is no requirement that the maker of the misrepresentation make it directly to the person deceived as long as the maker has reason to expect the misrepresentation will reach the person deceived. *Jamestown Iron & Metal Co. v. Knofsky*, 139 A. 611 (Pa. 1927). Section (2) of the instruction should be abbreviated to exclude those factors not appearing in the evidence.

(3) The definition of "fraudulent" is based upon the requirement of scienter as stated in *Shane*, above:
... which may be either actual knowledge of the truth or falsity of the representation, reckless ignorance of the falsity of the matter, or mere false information where a duty to know is imposed on a person by reason of special circumstances.

See Restatement of Torts § 526 (1939). The question of duty is one of law for the court, Prosser, *Handbook of the Law of Torts*, 289 (4th ed. 1974); thus, where item (3) under misrepresentation is given, the jury will only decide those issues of fact that are in dispute.

(4) The basic test of materiality is whether a reasonable person would attach importance to the fact in determining his or her course of conduct. Restatement of Torts § 538(2)(a) (1939), accord, Prosser, *Handbook of the Law of Torts* 718-19 (4th ed. 1974); Restatement of Restitution § 8(2) (1936). Materiality is measured by an objective standard, reliance by a subjective one. See Restatement of Contracts § 470(2) (1932) ("Where a misrepresentation would be likely to affect the conduct of a reasonable man with reference to a transaction with another person, the misrepresentation is material"). *Miles v. Stevens*, 3 Pa. 21 (1846) (significance to be assigned to words or conduct to be determined according to effect they would produce under the circumstances upon an ordinary mind). This definition of materiality precludes necessity of an instruction on obviously false representations, Restatement of Torts § 541 (1939); see also Restatement (Second) of Torts § 540A (Tent. Draft No. 10, 1964) ("A recipient of a fraudulent misrepresentation is justified in relying upon its truth without investigation unless he knows or has reason to know of facts which make his reliance unjustifiable").

(5) The appropriate test of reliance is whether the misrepresentation induced or influenced the plaintiff's course of conduct, Restatement of Torts § 46, comment a (1938); accord, Prosser, above, at 714-15; see Restatement of Restitution § 9, comments a and b (1936) ("one of the inducing facts"). The Pennsylvania cases discussing reliance requirements in actions for deceit have spoken in terms of "material inducement." *Neuman v. Corn Exch. Nat'l Bank & Trust Co.*, 51 A.2d 759 (Pa. 1947); *Mullin v. Gano*, 149 A. 488 (Pa. 1930); see *Pritchard v. Liggett & Myers Tobacco Co.*, 350 F.2d 479 (3d Cir. 1965) (circumstances indicating natural tendency to induce buyer to purchase goods also show reliance).

Reliance is justified when the fact misrepresented is material, Restatement of Torts § 538(1) (1938); Restatement of Contracts, § 479 (1932); *LaCourse v. Kiesel*, 77 A.2d 877 (Pa. 1951) (it is presumed from the very materiality of the misrepresentation that the person deceived relied upon it); hence the justifiability of reliance will be determined by the jury when it decides if the misrepresentation was of a material fact.

Footnotes

a1 Renumbered (former 13.22).

End of Document

PA-JICIV 17.260, Pa. SSJI (Civ), § 17.260 (2013)

Pennsylvania Suggested Standard Civil Jury Instructions
Fourth Edition with May 2014 Supplement
Volume II
Chapter XVII - Intentional Torts
Date of Last Revision - February 2009

17.260 (Civ) [a1] FRAUDULENT MISREPRESENTATION OR NONDISCLOSURE

A person must use reasonable care to disclose a material fact if:
***First*, the person knows he or she is making or later learns he or she has made a misrepresentation, or**

***Second*, the person knows he or she is making or later learns he or she has made a misleading representation, or**

***Third*, the person knows he or she is making a misrepresentation or misleading representation or later learns that another is about to act in reliance upon it. If that person fails to do so, he or she is responsible for all harm resulting from that other person's reliance on the misrepresentation or misleading representation.**

A misrepresentation is any assertion by words or conduct that is not in accordance with the facts.

A misleading representation is an assertion by words or conduct that is likely to mislead another regarding the facts.

An assertion by words may, for example, arise from statements contained in the labeling or in the advertising of a product. An assertion by conduct may, for example, arise from a usage of trade or course of dealing. A usage of trade is any practice or method of dealing that has been regularly observed among persons in a particular place, trade, or vocation. Because a usage of trade is so regularly observed, a buyer may justifiably expect it to be observed by the seller in any sale. A course of dealing arises from the previous conduct between the buyer and seller. The course of dealing establishes a common basis for understanding each other's expressions or conduct. An assertion by conduct may also arise when the seller knows the particular purpose for which the user or consumer requires the goods or product, and the seller furnishes the goods or product for that particular purpose.

A fact is material if it is one that would be of importance to a reasonable person in determining a choice of action. A material fact, however, need not be the sole or even a substantial factor in inducing or influencing a reasonable person's decision. A fact is also material if the person who fails to disclose it knows that the person to whom it is made is likely to regard it as important even though a reasonable person would not regard it as important.

"Reliance" means a person would not have acted as he or she did or would not have failed to act unless he or she considered the misrepresentation or misleading representation to be true.

SUBCOMMITTEE NOTE

The instruction is to be given in an action for deceit based on either misrepresentation or nondisclosure of a material fact. Restatement (Second) of Torts §§ 525, 551 (1977). "The deliberate nondisclosure of a material fact amounts to culpable misrepresentation no less than does an intentional affirmation of material falsity," *Neuman v. Corn Exch. Nat'l Bank & Trust*

Co., 51 A.2d 759, 764 (Pa. 1947) (sale of stock without disclosure of tie-in agreement, which defendant knew would affect its value); *Commonwealth v. Monumental Properties, Inc.*, 329 A.2d 812, 829 (Pa. 1974). See Restatement of Contracts §§ 471(c) and 472. The instruction is also sufficient for an action in assumpsit based on nonprivileged nondisclosure. *McFadden v. American Oil Co.*, 257 A.2d 283 (Pa.Super. 1969); *William Goldstein Co. v. Joseph J. & Reynold H. Greenberg, Inc.*, 42 A.2d 551 (Pa. 1945).

The subcommittee has omitted from the instruction the situation covered by the Restatement of Torts § 551(2)(a), where the obligation to disclose is created because of a "fiduciary or other similar relation of trust and confidence" because the question of duty is an issue of law for the court to decide, Prosser, *Handbook of the Law of Torts* 289 (4th ed. 1974).

Footnotes

a1 Renumbered (former 13.24).

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